

3170  
3:968-  
970

North Carolina State Library  
Raleigh N. C.  
Doc.

# CATALOG 1968-70

Technical  
Institute of  
Alamance



# TECHNICAL INSTITUTE OF ALAMANCE

## 1968-69 SCHOOL CALENDAR

### FALL QUARTER

Registration	September 3, 1968
Classes Begin	September 4, 1968
Last Day Course May Be Added	September 10, 1968
Last Day Course May Be Dropped	
Without Penalty	September 25, 1968
Classes End	November 20, 1968
Instructors' Records and Reports	November 21 and 22, 1968

### WINTER QUARTER

Registration	November 25, 1968
Classes Begin	November 26, 1968
Thanksgiving Holidays	November 28 and 29, 1968
Last Day Classes May Be Added	December 4, 1968
Last Day Classes May Be Dropped	
Without Penalty	December 19, 1968
Christmas Holidays	December 23-31, 1968 (Inclusive)
New Year's Holiday	January 1, 1969
Classes End	February 26, 1969
Instructors' Records and Reports	February 27 and 28, 1969

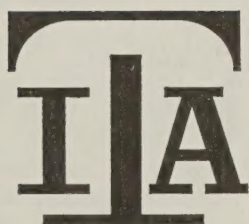
### SPRING QUARTER

Registration	March 3, 1969
Classes Begin	March 4, 1969
Last Day Classes May Be Added	March 10, 1969
Last Day Classes May Be Dropped	
Without Penalty	March 25, 1969
Easter Holidays	April 4-7, 1969 (Inclusive)
Classes End	May 23, 1969
Instructors' Records and Reports	May 26 and 27, 1969
Instructors' Workshops	May 28-30, 1969 (Inclusive)

### SUMMER QUARTER

Registration	June 2, 1969
Classes Begin	June 3, 1969
Last Day Classes May Be Added	June 9, 1969
Last Day Classes May Be Dropped	
Without Penalty	June 24, 1969
Independence Day Holiday	July 4, 1969
Students' and Instructors' Vacation	July 7-11, 1969 (Inclusive)
Classes End	August 27, 1969
Instructors' Records and Reports	August 28, 1969
Labor Day Holidays	August 29 and September 1, 1969

# CATALOGUE 1968-70

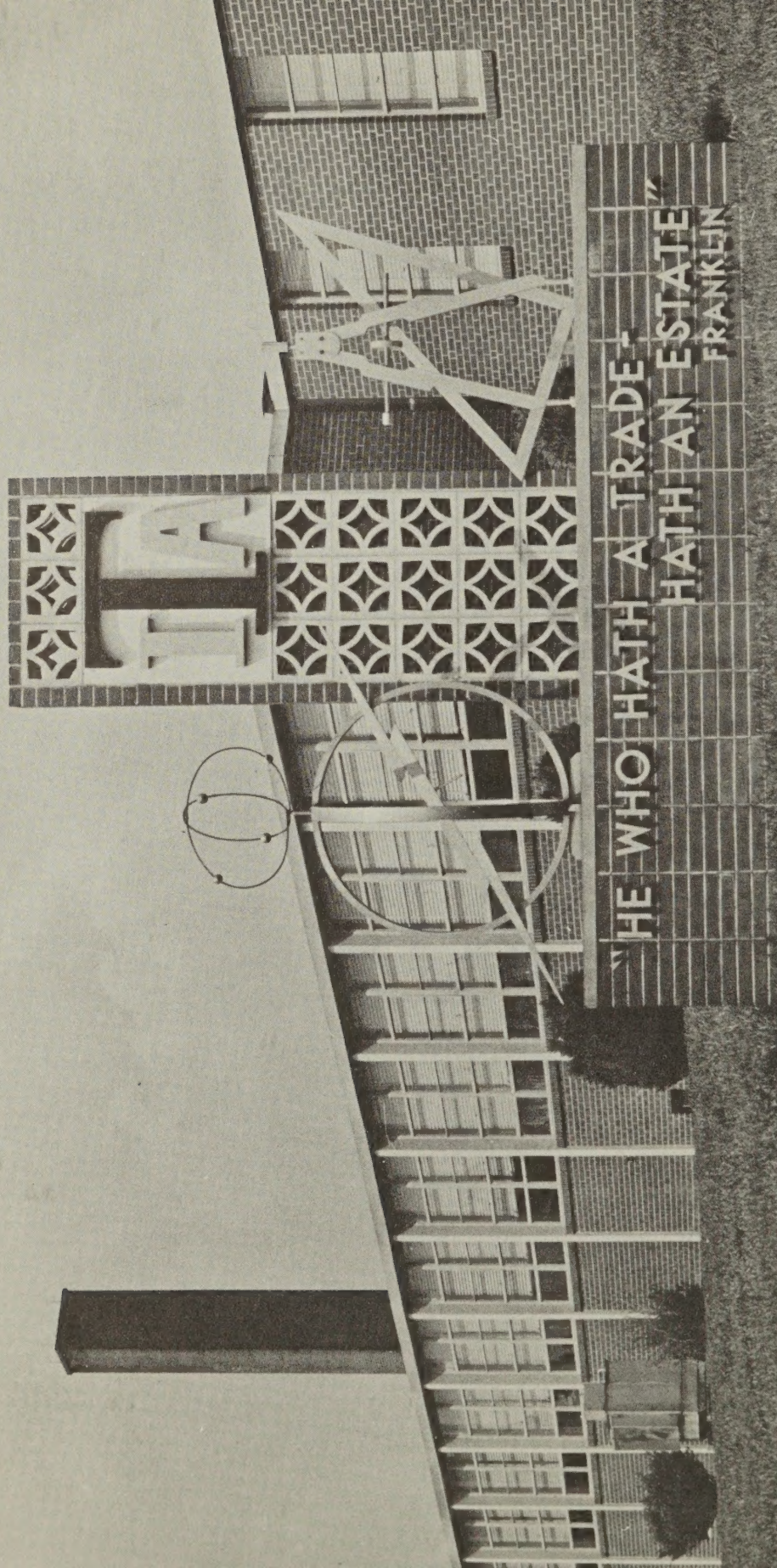


411 CAMP ROAD

TELEPHONE 226-6307

BURLINGTON, NORTH CAROLINA 27215







## CONTENTS

Board of Trustees .....	6
Administration .....	7
Faculty .....	8
General Information .....	9
Academic Information .....	12
Expenses and Fees .....	21
Student Services .....	27
Library .....	31
Programs of Study .....	33
Associate in Applied Science Degree Programs .....	35
Diploma Programs .....	83
Courses of Instruction .....	103
General Adult Education .....	147
Application and Map .....	Inside Back Cover



Students having questions not answered in this publication may secure additional information from The Director of Student Personnel, Technical Institute of Alamance, 411 Camp Road, Burlington, North Carolina 27215. Telephone 226-6307

The Legal and Corporate Name of the Institution is:  
"TECHNICAL INSTITUTE OF ALAMANCE"

The provisions of this publication are not to be regarded as an irrevocable contract between the student and the Technical Institute of Alamance. The Institute reserves the right to make changes in the regulations, courses, fees, and other matters of policy and procedure as and when deemed necessary. The Institute further reserves the right, at any time, to request the student to withdraw when it considers such action to be in the best interest of the institution.



## CORRESPONDENCE DIRECTORY

For prompt handling, please address inquiries as indicated below:

General Information.....	Office of the President
Business Matters.....	Office of the Business Manager
Admissions, Students Information, and Counseling Services.....	Office of the Director of Student Personnel
Vocational-Technical Programs.....	Office of the Director of Vocational-Technical Programs
Evening Programs.....	Office of the Director of Evening Programs
General Adult Education.....	Office of the Director of General Adult Education

Visitors are always welcome at the Technical Institute of Alamance. The Administrative Offices are open Monday through Thursday from 8:00 a.m. to 10:00 p.m. and Friday from 8:00 a.m. until 5:00 p.m. Visitors desiring interviews with members of the staff are urged to make appointments in advance.

A MAP SHOWING THE LOCATION OF THE SCHOOL  
CAN BE FOUND ON THE INSIDE BACK COVER.



## BOARD OF TRUSTEES

W. Clary Holt (Chairman)  
Partner-Attorney  
Sanders and Holt

Mrs. B. Tate Horton  
Homemaker

J. Nimrod Harris (Vice-Chairman)  
Secretary-Treasurer  
Annedeene Hosiery

James W. Pierce  
Engineering Department Chief  
Western Electric Co.

Bernie Bean  
Assistant Production Manager  
White Furniture Co.

Myron Rhyne  
Executive Vice-President  
Travora Textiles, Inc.

Wallace Gee  
President-Treasurer  
Ewing Motors, Inc.

Dr. Carl Sellars  
Veterinarian  
Sellars Animal Hospital

Hubert Green  
Industrial Engineer  
Burlington Industries, Inc.

Elijah Shaw  
Welder Operator  
Western Electric Co.

J. Robert Holt  
Vice-President  
The Mebane Company

D. J. Walker, Jr.  
Partner-Attorney  
Walker, Harris, and Pierce



## ADMINISTRATIVE OFFICERS

William E. Taylor.....President  
Edwin Barnes.....Director of General Adult Education (Acting)  
J. Dillon Cherry.....Business Manager  
Ray N. Easter.....Director of Student Personnel  
M. Glenn Klutz.....Administrative Assistant (Acting)  
Floyd D. Turnage .....Director of Occupational Programs

## ADMINISTRATIVE PERSONNEL

Paul C. Davis .....Extension Director of Adult Basic Education  
Mrs. Effie Lambert.....Bookkeeper  
Mrs. Edith Lougee .....Student Concessions Supervisor  
Edgar P. Lynch .....Director of Learning Resources Center  
Oscar W. Miles .....Building and Equipment Maintenance Supervisor  
Mrs. Jerry Nicks.....Bookstore Manager

## COUNSELORS

Mrs. Ella Ray Chacey .....Counselor  
Richard E. Davis .....Counselor

## SECRETARIAL STAFF

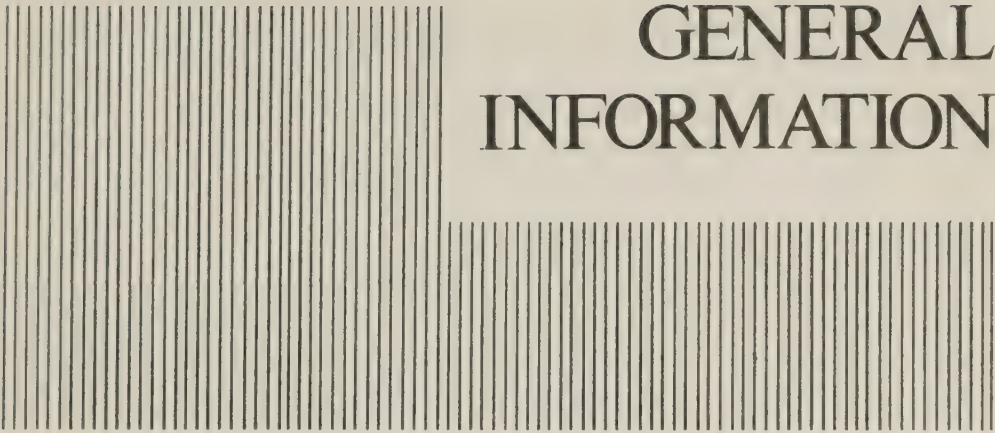
Mrs. Dorothy Allred  
Mrs. Ann Featherstone  
Mrs. Rosa Flynt  
Mrs. Nancy Leach  
Mrs. Ruth Holloway

Mrs. Betty Owens  
Mrs. Betty Powell  
Mrs. Delores Qualls  
Mrs. Ann Johnson

## FULL-TIME INSTRUCTIONAL STAFF

Pedro Alomia.....Department Head, Air Conditioning and Refrigeration  
 Landon Averitt.....Educational Technician  
 Mrs. Ellen H. Averitt.....Secretarial Sciences  
 Mrs. Rebecca M. Baker.....Fundamentals Learning Laboratory  
 Samuel Bundy, Jr.....Department Head, Business Administration  
 Edward Bertalan .....Engineering Technology  
 Vernon M. Cheek.....Accounting  
 Miss Evelyn Davis.....Division Chairman, Health Occupations  
 Gilmer W. Dodson.....Department Head, Data Processing  
 Garvin J. Ducker .....Division Chairman, Trades  
 Miss Frances Durant.....Art and Social Sciences  
 R. Wayne Feamster.....Division Chairman, Applied Art  
 Robert J. Graham.....Learning Laboratory and Related Studies  
 Terrance Hanner .....Data Processing  
 Jerry L. Harris.....Department Head, Chemical  
 Julius A. Kimbro.....Data Processing and Mathematics  
 Charles W. Lowry.....Division Chairman, Business Technology  
 Mrs. Mildred B. Lynch.....Dental Assisting  
 Mrs. Jean H. McMillan.....Department Head, Secretarial  
 Bobby L. Minnis.....Division Chairman, Related Subjects  
 James C. Newbold.....Department Head, Auto Mechanics  
 Harry E. Palmer.....Commercial Art  
 Mrs. Wanda Palmer.....Secretarial and Business Administration  
 Mrs. Florence Pate.....Practical Nursing  
 James E. Peebles.....Department Head, Electronics and Radio and TV  
 Mrs. Sue Slaughter.....Dental Assisting  
 Rudy H. Smith.....Department Head, Mathematics and Physics  
 John S. Stewart.....Department Head, Drafting and Design — Mechanical  
 Ralph Stockard.....Electronics  
 Robert Sutton.....Data Processing  
 James G. C. Swinney, Jr.....Division Chairman, Engineering Technology  
 Arthur Sykes.....Department Head, Machinist, Manufacturing  
 William L. Tullar.....Social Studies



A decorative graphic consisting of numerous vertical lines of varying heights, creating a textured, barcode-like effect. The lines are arranged in two main sections: a taller section on the left and a shorter section on the right, both spanning the upper half of the page.

# GENERAL INFORMATION

## HISTORY

The Technical Institute of Alamance was established in 1959. Its establishment was part of a state-wide system known as Industrial Education Centers. Through the cooperative efforts of the State Department of Trade and Industrial Education and the school systems of Alamance County and Burlington, the Burlington-Alamance County Industrial Education Center was begun.

The need for and the development of the Institute has been centered on the principle of responsiveness to changing needs and conditions in the area. The expansion of the industrial and technological era in the State has created many new employment opportunities for technically trained personnel. In addition, the right of every individual to have an educational opportunity to develop according to one's potential has been recognized.

The initiation of a state-wide system of Industrial Education Centers was begun in 1957 by the allocation of funds by the General Assembly. In 1959, the General Assembly officially designated this type of vocational school as an Industrial Education Center.

Under legislation enacted in 1963, administration of the Industrial Education Center was transferred to the State Board of Education, Department of Community Colleges. The local control of the Institution was vested in a board of trustees by the new legislation.

In continuance of the principle of responsiveness to changing needs and conditions in the area, the Board of Trustees applied to the State Board of Education through the State Department of Community Colleges to become a Technical Institute. The State Board of Education approved the change in status to a Technical Institute in January, 1964. Along with the approval, authority was granted to award the degree, Associate in Applied Science Degree (A.A.S.), in approved programs. In the spring of

1964, the Board of Trustees changed the name of the Institute to Technical Institute of Alamance.

Future development of the Technical Institute of Alamance will, as in the past, be constantly responsive to the educational and occupational as well as culturally oriented needs of the community.

## **PURPOSE**

The purpose of the Technical Institute of Alamance is to meet the educational needs of students and the community alike. In an effort to be responsive to these many and varied needs, a variety of curricula is offered. Occupationally oriented curricula are provided for those desiring training for employment in business and commerce, in health-related fields, in skilled trades, and at the technician level in industry. Due to continual technological advances, it will be necessary to continue offering courses that will enable individuals to up-date or to up-grade their skills.

Courses for persons eighteen years old or older who failed to complete high school are offered as well as other general adult education courses for the social, cultural, and personal development of adults. Educational services—speakers, resource personnel or materials, and special programs—will be made available to individuals and organizations as requested.

The educational, cultural, and social aspects of the individual's total development is encouraged through well rounded curricula, adequate facilities and equipment, qualified faculty and student activities.

## **POLICY OF ADMISSIONS**

Through following an "open door" policy of admissions at the Technical Institute of Alamance, it is possible for a high school graduate or a school leaver 18 years old or older needing formal educational opportunity to be served by the institution.

The "open door" policy does not eliminate the restrictions on admission to specific programs. It does mean that these restrictions will be flexible enough under careful guidance to allow a student every reasonable opportunity to prove himself under good teaching. A student will be afforded the opportunity to eliminate admission requirement deficiencies through remedial work, and may remain in the program of remedial work as long as he makes satisfactory progress. As soon as a student can meet the specific admission requirements, he may be enrolled in a curriculum. Refer to specific department for admission requirements for each program.

Any person who wishes to take a course or program is asked to complete an application form and return it to the Institute. Upon receipt of the



application, the Student Personnel Office will mail promptly to the prospective student instructions regarding admission procedures. Applications should be submitted well in advance of the beginning of the term in which the student desires to enroll. While students may be processed on the day of registration, an early application assures adequate time for the processing of the student and enables entry into a program where enrollment may be limited. Candidates are encouraged to apply early to be assured of a place in class. Classes are closed when maximum enrollment is reached. A student who plans to pursue a diploma or associate degree must ask his high school or college to submit a transcript of all previous work undertaken. Prior to registration, candidates may be requested to appear at the Institute for a personal interview and tests.

# ACADEMIC INFORMATION

## GENERAL ADMISSION INFORMATION

At the Technical Institute of Alamance the "open door" policy provides entrance to any individual who feels that he might benefit from training and/or services offered.

Counseling services are available to all students, beginning with the placement interview and continuing throughout the student's enrollment. Every effort is made to assist students to recognize and to understand their aspirations, educational preparation, interests, motivation and career objectives. Assistance is available to help each student recognize his strength and weakness in relation to academic programs.

### BASICALLY THE APPLICANT:

1. Must be eighteen years of age or older (or a high school graduate) to be admitted to the Institute.
2. Must submit an application form.
3. Must have high school (and college) transcript of previous academic work or high school equivalency (GED) scores submitted to the Institute.
4. Should report to the Institute for admission counseling and appropriate testing for which there is no fee. (Appointment schedules for testing will be mailed as application is processed)
5. Must be in good or acceptable physical and mental health.
6. Deposit \$15. upon acceptance into a curriculum program.

Various degree and diploma programs are open to the student entering TIA. In addition to the basic standards for admission, specific requirements may apply to certain programs. These specific requirements are in the section of the catalogue giving the program description. Early submission of application and meeting placement test schedules will facilitate acceptance. A deposit of fifteen (\$15.00) dollars is due upon receipt of this



acceptance. The deposit will be applied to the applicant's tuition charges and is not refundable unless covered by the institution refund policy

**SCHEDULE OF CURRICULUM CLASSES**

**Course Offerings**

Shortly before registration day each quarter, the Institute will announce a master schedule of courses to be offered. This will generally include all those courses required for a student to complete the work as outlined in the catalog for his curriculum. In some instances, however, it will be necessary for the Institute to rearrange this sequence of course offerings. Every effort will be made to enable a student to complete his program in the minimum possible time. Whenever practical, make-up classes and special courses will be offered to those needing them.

Using this master schedule of courses, each student will consult with his advisor prior to registration to arrange a class schedule to meet his own particular requirements.

**Class Hours**

The Institute will normally offer courses from 8:30 a.m. to 10:00 p.m. Monday through Thursday and from 8:30 a.m. to 5:00 p.m. on Friday. Students admitted to a curriculum program may, upon the approval of their department head, register for any of these courses. Those students expressing a preference for either the day or the evening program may expect to have their classes scheduled during these periods:

Day Classes:	8:30 - 9:23 a.m.
	9:30 - 10:23 a.m.
	10:30 - 11:23 a.m.
	11:30 - 12:23 p.m.
	12:30 - 1:23 p.m.
	1:30 - 2:23 p.m.
	2:30 - 3:23 p.m.
	3:30 - 4:23 p.m.
	4:30 - 5:23 p.m.
Evening Classes:	7:00 - 7:53 p.m.
	8:00 - 8:53 p.m.
	9:00 - 9:53 p.m.

**REGISTRATION PERIODS**

The Institute operates on a quarter system. Registration of new students for all curriculum programs occurs at the beginning of the fall quarter in September. Registration in technologies and selected vocational programs may also occur at the beginning of the spring quarter for new students.

Continuing students may consult the Institute calendar for specific dates of subsequent registration periods.

**TRANSFER CREDIT OR ADVANCED STANDING**

The Technical Institute of Alamance permits admission with advanced standing for transfer students from member institutions of the North Carolina Department of Community Colleges, and other recognized and approved institutions. Only course grades of “C” or above will be accepted. Content of such courses must closely parallel these for which credit is sought at the Institute.

The Student Personnel Office must approve all transfer credits, prior to initial enrollment, and each application for transfer of credit will be evaluated according to the individual situation. No quality points will be given for transferred credit.

The Technical Institute of Alamance operates on a quality point system. In the computation of a student’s average, one quarter hour of work passed with a grade of A, B, C, D, or F is given a numerical value of 4, 3, 2, 1, 0 respectively, which is then multiplied by the number of quarter hours represented by the course. The resulting product is the number of quality points earned for the course with the grade received.

The quality point average is determined by dividing the total quality points earned in all courses by the total number of quarter credit hours scheduled including any courses failed.

**GRADING AND QUALITY POINT SYSTEM**

GRADE		GRADE POINT EQUIVALENT
A—Excellent	93-100.....	4 quality points for each credit hour
B—Good	86-92.....	3 quality points for each credit hour
C—Fair	78-85.....	2 quality points for each credit hour
D—Passing	70-77.....	1 quality point for each credit hour
F—Failure	Below 70.....	0 quality points for each credit hour

**I—Incomplete.** This signifies that the student is incomplete in some report or other work assigned by his instructor or that he has an excused absence for the final examination, which will be given him at some other date but is otherwise passing. An “I” must be completed satisfactorily during the first two weeks of the next quarter or it automatically becomes an “F”

**W—Withdrawn.** This signifies that the student has withdrawn during the first three weeks of the quarter.



**WP—Withdrawn Passing.** This signifies that the student has withdrawn from a course voluntarily with a passing grade during the fourth through the ninth week of the quarter.

**WF—Withdrawn Failing.** This signifies that the student has withdrawn from a course with a failing grade during the fourth through the ninth week of the quarter. This designation means that the grade will not be computed in the quality point average.

**F—Failure.** This signifies that the student withdrew from a course with a failing grade during the tenth through the twelfth week, or failed the entire course. Unique cases may be reviewed by the Administration.

All final course grades will be a letter grade in accordance with the adopted grading system. Students will receive reports at the end of each quarter.

## **GRADUATION REQUIREMENTS**

The scholastic point average is determined by dividing the total quality points earned in all courses by the total number of quarter credit hours scheduled, including any courses failed.

## **STUDENT'S RESPONSIBILITY FOR SECURING SPECIAL HELP**

It is the student's responsibility to seek out extra help if needed. Instructors are available for conferences but will not require that a person come in for extra help. In all cases, an instructor will be more than willing to help, but it is up to the individual student to ask.

## **WITHDRAWING FROM SCHOOL**

If a student wishes to withdraw for any reason, he should first discuss it with his advisor; second, report his decision to the Student Personnel Office; third, obtain a clearance form that will be signed by each subject instructor, including the librarian and the general office. The failure to do this may result in the withholding of all information in the student's file by the Director of Student Personnel.

## **ADDITIONAL COURSE WORK**

The contact hours for each curriculum are minimal. It is a policy of this institution to permit students to enroll in additional courses and/or laboratory work beyond those shown in the catalog.

When in any quarter the total weekly contact hours listed are fewer than twenty-five hours in a technical curriculum and fewer than thirty hours in a vocational trade curriculum, a student may enroll on request for additional instructional hours deemed by the institution to be consistent with the program and appropriate to the student to make up twenty-five hours per week in a technical curriculum or sufficient hours of attendance to make up thirty hours per week in a vocational trade curriculum.

## **RESIDENCY REQUIREMENTS FOR GRADUATION**

Candidates for a diploma or degree are normally expected to complete one-half of their course work at this institution. Special cases will be given consideration beyond the aforementioned.

## **SPECIAL STUDENTS**

Special students are those who are enrolled for course credit but not in a curriculum leading to the diploma or the associate degree. Students enrolled in this status will normally be required to meet the prerequisites for the course or to demonstrate a necessary level of competence by an appropriate test. Students enrolled on this basis must do so through arrangement with the Student Personnel Office.

## **PROVISIONAL STATUS**

Students who have not completed placement tests or lack sufficient data for their file may be classified as provisional students. Those students on this status must complete all admission requirements following actual enrollment.

## **COURSE AUDIT**

A student may elect to audit a course. Those auditing receive no credit and do not have to take any examination; otherwise, participation in class is on the same basis as a credit student. A student who has previously audited a course is ineligible for credit by examination. The fee for auditing is the same as the fee for credit.

## **COURSE LOAD**

Students enrolled for 12 or more credit hours are classified as full time students. Those taking less are classified as part time. Normal course load will vary from one curriculum to another and should be carefully planned with the Faculty Advisor. A student may enroll for maximum load depending upon his capability as determined by his Faculty Advisor. A normal course load is outlined by Departments in this catalogue.



## APPLICATION FOR DEGREE OR DIPLOMA

Students are required to apply as candidates for the diploma or the degree. This must be completed during the first two weeks of the last quarter of school attendance. This insures that the candidate's record will be properly reviewed, and that he will be notified of any deficiencies.

## TRANSCRIPTS

The Student Personnel Office furnishes transcripts with a written request and a fee of \$1.00 which is required for each transcript. The first transcript is free.

## STUDENT DEFERMENT

The Selective Service makes provisions for those students who meet certain requirements to be deferred. The first requirement is enrollment in a full time curriculum program (minimum 12 credit hours), and the second one is satisfactory progress in the program.

## CLASS ATTENDANCE AND REGULATIONS

Regularity of class attendance is expected of all students. With each absence a student incurs the loss of some educational value.

The following rules governing class absences will be strictly and fairly enforced:

1. A student will not be penalized if absences do not exceed the number equal to the credit hours of the course. Days before and following legal holidays and vacation constitute two absences for each credit hour missed.
2. Each student is urged to use these absences *only* for the following reasons:
  - (a) Illness of the student.
  - (b) Death of a member of the immediate family (Parents, siblings, grandparents).

When a student exceeds the allowed number of absences for a course, *he may be dropped by the instructor and the registrar will be notified.*

3. When an absence occurs on a day of a test, permission to take a make-up test will be granted at the discretion of the instructor. Students are responsible for arrangements of make-up tests within one week following an absence.

4. Students are responsible for obtaining all assignments and work covered during an absence.
5. A student should report illness in excess of one day to the Student Personnel Office.
6. Three tardies are counted as one absence. The first ten minutes of class constitutes a tardy; time thereafter is considered an absence.
7. Cases involving unusual circumstances may be reviewed by the student affairs committee. (*Written request must be initiated by the student to the chairman of this committee*).
8. In cases when the instructor is not in class and other arrangements have not been made, the students are automatically dismissed after ten minutes. A roll must be signed by the students present and turned in by one of them to the General Office.

## ACADEMIC PROBATION AND DISMISSAL

A student must achieve a cumulative quality point average of at least 2.0 in order to graduate. Failure to achieve a 2.0 quality point average (QPA) at the end of any quarter (for that quarter) will result in the student being placed on academic probation. The student will be notified of his probationary status by letter and *will be required* to schedule periodic conferences with a counselor or advisor.

A student on probation may remain in his program as long as his subsequent quarter's QPA meets the minimum of 1.50. If the subsequent quarter's work should fail to meet this minimum, the student may be required by his Department Head to drop certain courses or change curriculum, and/or take remedial work, or the Department Head may recommend dismissal to the Student Affairs Committee. A student will be dismissed from the school only if it is evident that he is unable to maintain progress after all possible alternatives are exhausted.

Re-admittance at a subsequent quarter will be at the discretion of the Student Affairs Committee. Students may appeal a decision of the Department Head by letter to the Student Affairs Committee. Decisions of the Student Affairs Committee may be appealed by letter to the Board of Trustees via the President of the Institute.

## SUSPENSION AND DISMISSAL

Students will be expected to conduct themselves at all times as individuals of prudence and maturity. The rights and feelings of others will be respected. Students shall demonstrate a high regard for school facilities and property and for the personal property of others.



School regulations which serve to control such activities as vehicular traffic and parking, smoking, and other aspects of personal conduct must be observed. Students may be suspended or dismissed for conduct which is considered incompatible with standards of propriety and good judgment.

Re-admittance of dismissed students at a subsequent session will be at the discretion of the President. Students may appeal a suspension or dismissal decision by letter to the Board of Trustees via the President.

## HONORS

Graduating students who earn a Quality Point Average of 3.5 during the course of study will receive a degree or diploma with honors. Graduating students with the highest overall grade point average in both the associate degree and diploma programs will be given special recognition at the graduation exercises.

## COURSE NUMBERING SYSTEM

The following system established by the Department of Community Colleges is used in designating the courses offered by the Institute.

1. Each course is indicated by a three-letter prefix designating the general subject area. The prefix for technical courses will be preceded by the letter "T".
2. A number follows the letter prefix to indicate a specific course within an area according to the following rules:

**Vocational** courses are assigned numbers within the range of 1000 to 2000.

**Technical** courses are assigned numbers within the range of 100 to 300.

**Adult Education** courses beyond the high school level are assigned numbers within the range of 2000 to 3000.

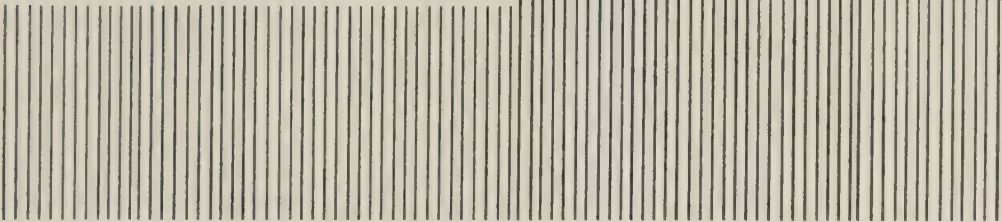
**Special** courses developed by the Institute for curriculum programs will be indicated by the letter "S" following an appropriate prefix and number chosen according to the above rules.

**The Following is a List of the Abbreviations Used as Prefixes:**

Air Conditioning, Heating & Refrigeration	AHR	Electronics	ELN
Art	ART	English	ENG
Automotive	AUT	Industrial Science	ISC
Business	BUS	Mathematics	MAT
Chemistry	CHM	Mechanical	MEC
Commercial Art	CAT	Nursing	NUR
Cybernetics	CYB	Philosophy	PHI
Dental	DEN	Physics	PHY
Drafting and Design	DFT	Power Mechanics	PME
Economics	ECO	Political Science	POL
Electrical	ELC	Psychology	PSY
Electronic Data Processing	EDP	Sociology	SOC
		Social Science	SSC
		Welding	WLD



# EXPENSES AND FEES



## GENERAL INFORMATION

In keeping with its philosophy, the Technical Institute of Alamance seeks to provide quality education and training at the lowest cost possible.

The state and federal governments provide funds for equipment and services.

The local board of county commissioners provides funds to acquire land, erect buildings, and to maintain and operate the buildings.

The distribution of operating costs are shared approximately as follows:

State	79%
Local	8%
Student	13%

The thirteen percent of cost assumed by the student is through the payment of tuition and fees.

## TUITION AND FEES

Tuition and fees for each quarter are payable on or before the date of registration.

All checks and money orders should be made payable to Technical Institute of Alamance. A check given in payment of expenses which is returned by the bank creates an indebtedness to the Institute and jeopardizes the student's enrollment.

Any student who is unable to make payment at the time of registration must make special arrangements with the Business Manager to pay outstanding balance of tuition and fees within the first week of classes. If a longer extension of time is needed a student must assure payment of any outstanding balance of tuition and fees. A promissory note will meet this requirement; however, parents or guardians must execute notes for students under twenty-one years of age.

A student is not eligible to re-register who has an outstanding balance due for fees and tuition incurred in any previous quarter, unless adequate security is given. This includes any outstanding balance at another institution of the Community College System.

A student will not be allowed to graduate, receive a diploma or certificate, or a transcript of his record, nor will any information concerning his record be forwarded to any other institution or other person as long as an account is outstanding.

The student should arrange well in advance to pay all necessary expenses on the day of registration.

## **CURRICULUM PROGRAM ADVANCE REGISTRATION FEE**

When an applicant is officially notified of admission to a course of study, he is required to make a \$15.00 deposit upon notice of acceptance which assures entry into that program. This deposit is applied to the tuition charge upon registration for the first quarter and is not refundable unless covered by the institution's refund policy.

## **TUITION—NORTH CAROLINA RESIDENT**

The formula for equating credit-hour equivalency with credit hours for the purpose of assessing tuition charges is as follows:

- 1 class hour — 1 credit hour
- 2 laboratory hours — 1 credit hour
- 3 shop hours — 1 credit hour

Credit Hour

Equivalency X \$2.50 = tuition per quarter with a maximum of \$32.00 for technical and vocational curriculum students.

## **FULL-TIME STUDENTS**

All vocational, technical, special, and audit students who are enrolled for thirteen (13) or more credit hours are charged a maximum of \$32.00 per quarter; however, students enrolled for 12 credit hours or more are full-time students.

## **PART-TIME STUDENTS**

The tuition charge for curriculum credit students (and audit students) is \$2.50 times the number of credit hours for which the student is enrolled. Example: 9 credit hours X \$2.50 = \$22.50.



## **ESTABLISHMENT OF RESIDENCY**

A student who is not a legal resident of North Carolina must pay non-resident tuition. A person twenty-one years of age or older is not deemed eligible for the resident rate of tuition unless he has established and maintained his legal residence in North Carolina for at least six months immediately preceding the date of his first enrollment in the Technical Institute of Alamance. The legal residence of a person under twenty-one years of age at the time of his first enrollment in the Technical Institute of Alamance is that of his parents, surviving parent, or legal guardian. If the parents are divorced or legally separated, the legal residence of the father will be considered the residence of the student unless custody of the minor has been awarded by court to the mother or to a legal guardian other than a parent. No claim of residence in North Carolina based upon the residence of a guardian will be considered if either parent is still living, unless the action of the court appointing the guardian precedes the student's first enrollment at the Technical Institute of Alamance by at least twelve months.

When the resident status of a student is determined at the time of his first enrollment, it may not thereafter be changed except (a) in the case of a non-resident minor student whose parents subsequently establish legal residence in North Carolina; and (b) in the case of a resident student, or his parents, who cease to be residents of North Carolina.

The legal residence of a wife follows that of her husband except that a woman student enrolled in the Institute as a resident may continue as a resident, even though she marries a non-resident.

One does not acquire the status of a resident of North Carolina by reason of being stationed in the State while in military service.

Ownership of property, payment of state or local taxes, or registration of an automobile in the state, apart from legal residence, will not qualify one for the resident rate of tuition.

Students who are in doubt as to their status as a resident should request clarification by writing to or consulting the Business Manager before registration.

## **OUT-OF-STATE TUITION (Non-Resident)**

Any student whose legal residence is outside of North Carolina will pay tuition fees two and one-half times the in-state resident rate. Students living with relatives in this state whose parents or guardian live outside North Carolina will pay tuition fees two and one-half times the in-state resident rate.

## **FULL-TIME NON-RESIDENT**

Non-resident students taking thirteen (13) or more credit hours of work will be charged a maximum of \$80.00 per quarter tuition for vocational and technical curriculum programs.

## **PART-TIME NON-RESIDENT**

Those taking twelve (12) or less credit hours of work per quarter will be charged \$6.25 times the number of credit hours enrolled.

Audit and Special Students, who are non-residents, will be charged at the same rate as the non-resident curriculum student.

## **ACTIVITY FEE**

An Activity Fee of \$1.00 per quarter is required of all curriculum students enrolled for twelve (12) or more credit hours. The fee is charged at the beginning of each quarter and is payable by both resident and non-resident students. These fees are to be used at the discretion of the Student Council for such purposes as a school newspaper, dances, picnics, etc. This fee is not refundable.

## **CURRICULUM PROGRAM LATE REGISTRATION FEE**

To prevent or reduce the problems incident to late registration, registration schedules are set for specific days and certain definite procedures are required.

A student has not completed registration until all of the required steps are taken. It is the student's responsibility to seek and then to follow the necessary procedures.

Any student who fails to complete registration for all classes and to make the required payment of expenses and fees on the prescribed registration day according to the official school calendar will be charged a late registration fee of \$5.00. This applies to all curriculum students with no exception—day, evening, full-time, part-time, special, and audit enrollees.

Those with anticipated financial difficulties should contact the personnel office, in person, well in advance of the registration deadline.

## **REFUND POLICY**

Tuition refund for students shall not be made unless the student is, in the judgment of the institution, compelled to withdraw for unavoidable

reasons. In such cases, two-thirds (2/3) of the student's tuition may be refunded if the student withdraws within ten (10) calendar days after the first day of classes as published in the school calendar, provided the student completes the "Request for Refund" form within thirty (30) days after officially withdrawing from school. Tuition refunds will not be considered after that time. Tuition refunds will not be considered for tuitions of Five Dollars (\$5.00) or less, unless a course or curriculum fails to materialize due to no fault of the student. EXCEPTION: Those students who are veterans or war orphans receiving benefits under U. S. Code, Title 38, Chapter 33 and 35 may be refunded the *pro rata* portion of the tuition fee not used at the time of withdrawal of such students.

There is no refund on payments for activity fees, insurance premium fees, and special fees such as late registration.

In all refund cases, the student must initiate his withdrawal through the Student Personnel Office. The Business Office will make the allowable refund only after written request has been received from the Personnel Office with approval by the Director of Student Personnel and the Student's Department Head.

## BOOKS AND SUPPLIES

All of the student's necessary textbooks can be acquired from the Institute's bookstore. Drawing supplies, slide rules, nursing caps, nurses and dental assistant pins are also available in the bookstore; however, composition books, pens, pencils, decals and other miscellaneous items are sold at the snack bar in the student lounge.

The bookstore is operated on a strictly cash basis and there is no refund on books or supplies. It would be to the student's advantage to meet each class at least once before attempting to purchase texts and materials.

Some textbooks cost as little as \$1.25 and others as much as \$15.00, but the average cost of each book is approximately \$8.00. Most students should anticipate spending an average of approximately \$40.00 per quarter for books, supplies, and materials. The total cost varies according to the particular program. The nursing, drafting and commercial art programs require special items and/or instructional kits which may vary from quarter to quarter.

## UNIFORM DEPOSIT (Nursing Students Only)

Nursing students are required to make a \$20.00 uniform deposit payable at the General Office during the first quarter.

The uniform deposit entitles each nursing student to the use of three (3) sets of uniforms and two (2) caps. (Caps are sold in the Institute's bookstore to licensed practical nurses who have graduated from the Technical Institute of Alamance.)



Should the student complete the requirements for graduation and return all uniforms in satisfactory condition, the \$20.00 may at the request of the student, be paid to the State Nursing Board to cover the required cost of taking the examination which enables practical nurses to become licensed. This deposit is refundable to those who leave school and return all uniforms in satisfactory condition.

## INSURANCE

Accident insurance, covering hours in school and transportation to and from school, is available for \$2.50 per year. Students desiring this insurance may make payment to the General Office after registering for the Fall Quarter and at other designated times. It is not refundable.

Neither the Institute nor the State of North Carolina carries insurance to cover any student for accidents or otherwise. Therefore, students enrolled in all shops and labs are particularly urged to take advantage of this insurance.

## TYPICAL FALL QUARTER EXPENSES

	N. C. Resident	Non-Resident
Tuition	\$32.00	\$ 80.00
Activity Fee	1.00	1.00
Insurance (Optional)	2.50	2.50
Books and Supplies (Estimate)	40.00	40.00
TOTAL	<u>\$75.50</u>	<u>\$123.50</u>

## TYPICAL SPRING QUARTER EXPENSES

	N. C. Resident	Non-Resident
Tuition	\$32.00	\$ 80.00
Activity Fee	1.00	1.00
Books and Supplies	40.00	40.00
TOTAL	<u>\$73.00</u>	<u>\$121.00</u>

Students in the curriculums or programs listed below will have additional expenses as indicated:

Practical Nursing—\$20.00 (Uniform Deposit)—1st Quarter

Commercial Art—\$50.00 (Drafting Kit & Supplies)

Drafting—\$30.00 (Drafting Kit & Supplies)

## TRANSCRIPT FEE

After the initial transcript is issued, a \$1.00 fee will be charged for each subsequent transcript.

# STUDENT SERVICES



## GENERAL PHILOSOPHY

Student services are an integral part of the educational program of the Technical Institute of Alamance.

The main purpose of these services, individually and collectively, is to facilitate the educational process of the student. In support of this aim, the student services are organized to assist students in moving from one level of achievement to another.

Student services include various forms of assistance through counseling, testing, orientation, and placement. Various student affairs, such as housing, financial aid, part-time work, the supervision of extra-curricular activities and student council are also included within the framework of these services. Emphasis by counselors is placed on self-understanding, personal growth and assistance in achieving economic self-sufficiency in a job reasonably appropriate to abilities and satisfying to individual interests.

The philosophy of Student services is based on these purposes in a friendly atmosphere so that personal integrity and group morale will be preserved and enhanced.

## COUNSELING AND TESTING SERVICE

Recognizing that every person is an individual and unique in aptitudes, personality, and ambition, a counseling service is provided for students who desire assistance with vocational, educational, and related matters. Individuals of the community are invited to seek this service if they desire to obtain assistance in the attainment of personal goals. Testing is provided at no cost to the student when information is desired and needed in aptitude, temperament, achievement, and vocational interest. Individuals are encouraged to avail themselves to these services.

## **PLACEMENT SERVICE**

Employment opportunities are made available as another service of the institution. Prospective employers visit the campus to recruit in the institution. Students are assisted in making contacts with future employers. Information is available regarding trends of employment, data about salaries, and a file kept up-to-date on prospective employers and employment.

The Student Personnel Office, however, does not guarantee employment. The objective of this service is to guide and assist the student in obtaining the type of position for which he has been best qualified.

## **STUDENT HOUSING SERVICE**

The Institute does not have dormitory facilities; however, a current list of Burlington residents offering housing facilities may be obtained upon request. Costs will vary between \$8 to \$16 per week according to livability and convenience. The Institute staff will be happy to render limited assistance when possible in aiding to make adequate preparation for housing.

## **FACULTY ADVISOR SYSTEM**

The advisor system is a cooperative effort of the advisor and the Student Personnel Office.

At the time of enrollment, each student is assigned a faculty advisor. The purpose of the advisor is to assist students in planning their programs and selecting courses so that appropriate progress will be realized. Each student is expected to be fully responsible and cognizant of his status in his program in relation to standards of the institution.

## **FINANCIAL AID SERVICE**

Assistance is made available to students in meeting their financial needs for school attendance. Where possible, this is done through a program of financial aid which may include several forms of assistance.

The Institute serves as a referral and information agency for the following resources:

- A. Veterans Benefits
- B. Social Security Agency
- C. Department of Public Welfare
- D. Employment



The Institute serves students directly as a disbursing agency for the following:

- A. Scholarships
- B. Work Study Programs
- C. Loans
  - 1. College Foundations
    - A. Insured Loan Program
    - B. Bryan Foundation
    - C. Picket and Hatcher Foundation
  - 2. Nursing Student Loans

Students must be accepted before application is made for financial aid. The financial aid program is generally based on need and scholarship. Applications for financial aid may be obtained from the Student Personnel Services Office. Since there is time involved in processing of an application, advanced planning must be made.

## VETERANS EDUCATION BENEFITS

The Technical Institute of Alamance is approved by the Veterans Administration for students who are eligible under the law. Eligible persons for benefits are urged to take advantage of the guidance service and educational facilities of the Institute. Veterans and dependents or students who expect to enroll under the War Orphans Educational Assistance Act should contact their Veterans Service Office in advance of registration.



For veterans enrolled under the G. I. Bill, in order to receive full benefits, are required to carry a full load of class work. The contact hours shown in the catalogue are minimal. It is a policy of this Institute to permit students to enroll in additional subjects and laboratory work beyond those shown in the catalogue in order to broaden their training.

## **STUDENT LOUNGE**

The Student Lounge is located centrally in the building and is open to all students as a place for relaxation and refreshments. A variety of soft drinks, along with coffee, candy, and sandwiches are available at the snack bar.

# LIBRARY



Learning to appreciate and use the library is an important part of every individual's education. The Technical Institute of Alamance recognizes this as a significant factor in all of its programs. Every effort has been made to supply the best possible resource material and a competent staff to meet these needs for the student, the faculty, and the community.

The collection of books and materials is open-shelf and open-stack. This easy access to books fosters an informal working atmosphere which encourages the student to read and study. Students, who are urged to take initiative in reading and research, find an environment where they see that knowledge is not confined to disciplines or compartments but continues from one field to the next. In this situation, students usually learn more quickly when they can turn readily from the examination of one book to the examination of others related to their immediate interest.

The book collection includes about 12,500 volumes of books and pamphlets representing the curriculum. Some of the books are:

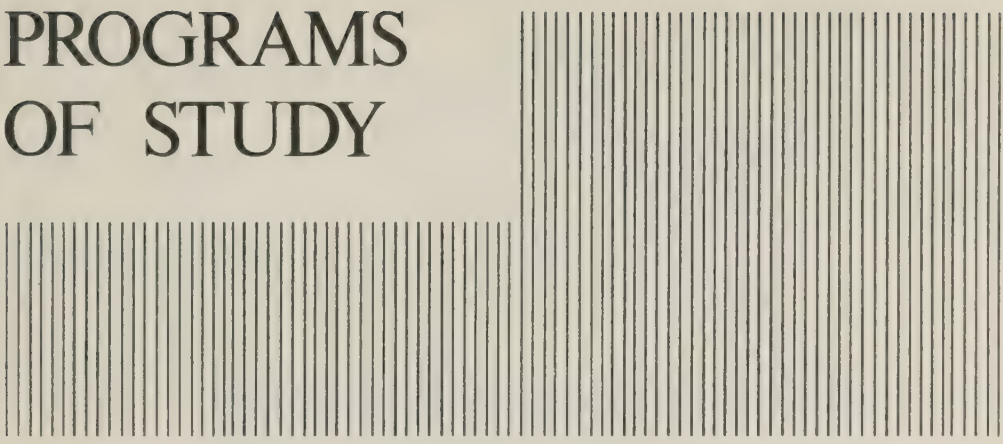
1. Books comprising the core collection and supporting the curriculum.
2. Books on the periphery of the curriculum which are of serious, general interest.
3. Books of supplementary reference value such as general histories or biographies.
4. A representative collection of fiction, short stories, and plays.

TIA subscribes to approximately over one hundred well-chosen periodicals which represent and support the curriculum. Those which are indexed in Reader's Guide and the Applied Science and Technology Index, are bound each year for permanent use. The student will find the bound periodicals useful in locating the most recent information on a particular subject.



The class instructor is the person best qualified to introduce the student to the literature of his particular field; however, the library provides orientation on how to find and use books. Students are urged to ask for help when they feel the need of it.

# PROGRAMS OF STUDY

A decorative graphic consisting of two rectangular areas filled with vertical lines. One area is on the left, below the title, and the other is on the right, to the right of the title.

The Technical Institute of Alamance offers the following programs of study:

## ASSOCIATE IN APPLIED SCIENCE DEGREE PROGRAMS

### **Applied Art**

Commercial Art and Advertising Design

### **Business Technologies**

Business Administration  
Business Data Processing  
Medical Secretary  
Scientific Data Processing  
Technical Secretary

### **Engineering Technologies**

Air Conditioning and Refrigeration  
Chemical  
Drafting and Design Technology  
Electromechanical  
Electronics  
Manufacturing

## DIPLOMA PROGRAMS

### **Health Occupations**

Dental Assisting  
Practical Nursing

## **Mechanical Occupations**

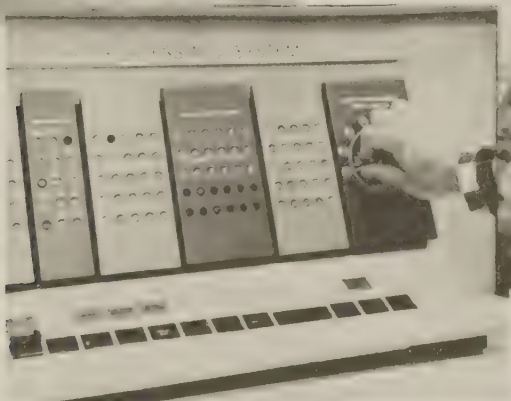
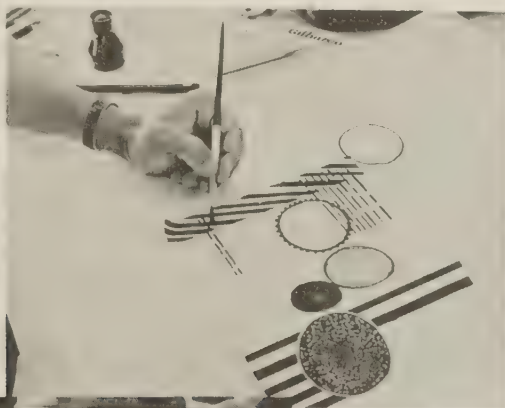
Air Conditioning and Refrigeration Mechanics  
Automotive Mechanics  
Mechanical Drafting

## **CERTIFICATE PROGRAMS**

Adult Basic Education  
Community Services  
General Adult Education  
Industrial Services  
Special Education



ASSOCIATE IN  
APPLIED SCIENCE  
DEGREE PROGRAMS





## **ASSOCIATE DEGREE PROGRAMS**

### **(TWO YEARS)**

#### **ADMISSION REQUIREMENTS**

##### **MINIMUM ADMISSION REQUIREMENTS**

Requirements for admission of a candidate to the two-year associate degree programs include the following qualifications. The candidate:

1. Must be a high school graduate or have a State-approved equivalent education.
2. Must submit the transcripts of high school and post-high school education.
3. Must demonstrate aptitude for desired training as determined by standard tests.
4. Must be in acceptable condition of physical and mental health. Medical examination may be required at the discretion of the administration.
5. May be required to have an interview with a designated representative for discussing enrollment plans and lifetime career goals.

In addition to the above minimum admission requirements, more specific prerequisites are necessary in some programs.

Two units of Algebra or one unit of Algebra and one unit of Plane Geometry are required in the following programs:

Air Conditioning and Refrigeration Technology

Business Data Processing

Chemical Technology

Drafting & Design Technology

Electromechanical Technology

Electronics Technology

Manufacturing Technology

Scientific Data Processing

It is suggested that students should have completed one unit of physical science with laboratory.

Facilities are available at the Institute for removal of academic deficiencies.

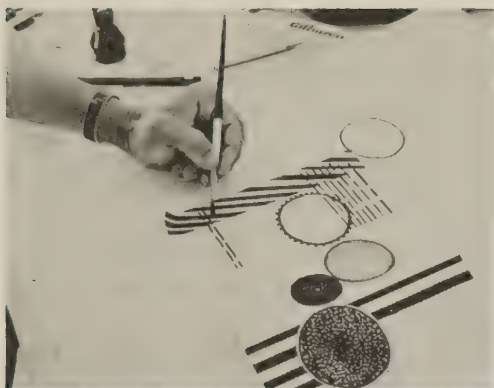




# COMMERCIAL ART AND ADVERTISING DESIGN







## COMMERCIAL ART AND ADVERTISING DESIGN

### Purpose of Curriculum

Surveys have shown an increase in the demand for graduates possessing training in the field of Commercial Art and Advertising Design. This curriculum will prepare a graduate with a sound, well-rounded background for technical and creative achievement throughout his professional life. Design and illustration for commerce is continually advancing its standards, therefore, the background offered the student must be well-developed to prepare him for performance on a contemporary professional level. Graduates of this program will have an adequate background in illustration, layout and lettering, design, and production enabling them to be employed in some facet of Commercial Artistry.

Equipped with professional competence and the potential for continuing growth and improvement, graduates are qualified for employment in advertising agencies, design studios, department stores, industrial advertising departments, government agencies, newspapers, television studios, printing and publishing houses.

### Job Description

The commercial artist or advertising designer creates and designs layouts and illustrations for printing, creates posters, signboards, billboards, and show cards. He may design and prepare charts, diagrams, sketches, and maps for publication and exhibition, perform responsible illustrative work for package design, photography, lettering, and art work for the printing processes. Opportunities for graduates of this program may be in advertising agencies, newspapers and magazines, television studios, industrial advertising departments and design studios, department stores, government agencies, or in printing and publishing houses.

### Minimum Admission Requirements

Requirements for admission of a candidate to the two-year associate degree in the Commercial Art program includes the following qualifications. The candidate:

1. Must be a high school graduate or have a State-approved equivalent education.
2. Must submit the transcripts of high and post-high school education.
3. Must demonstrate aptitude for desired training as determined by standard tests. These tests will aid in student selection, placement, and guidance. Institution guidance and counseling will be available to the student throughout his education, not just at the time of his enrollment.
4. Must be in acceptable condition of physical and mental health. Medical examination may be required at the discretion of the administration.
5. Must have an interview with a designated representative for discussing enrollment plans and lifetime career goals.
6. Must submit a demonstration of his artistic ability in work prescribed by the Institute.

It is suggested that students should have completed one unit of physical science with laboratory.

Facilities are available at the Institute for removal of academic deficiencies.

### SUGGESTED CURRICULUM BY QUARTERS

#### COURSE TITLE

First Quarter	C	L	CH
T-ENG 101 Grammar .....	3	0	3
T-DFT 101 Technical Drafting .....	0	6°	2
T-CAT 101 Advertising Principles .....	3	0	3
T-CAT 105 Life Study .....	2	3°	3
T-CAT 121 Commercial Art and Advertising Design .....	3	9°	6
	<hr/>	<hr/>	<hr/>
	11	18	17

Second Quarter	C	L	CH
T-ENG 102 Composition .....	3	0	3
T-DFT 102 Technical Drafting .....	0	6°	2
T-MAT 110 Business Mathematics .....	5	0	5
T-CAT 106 Life Study .....	0	6°	2
T-CAT 122 Commercial Art and Advertising Design .....	3	9°	6
	<hr/>	<hr/>	<hr/>
	11	21	18

COURSE TITLE

Third Quarter	C	L	CH
T-ENG 103 Report Writing .....	3	0	3
T-CAT 110 Industrial Illustration .....	2	6	4
T-CAT 116 Photography .....	2	6	4
T-CAT 123 Commercial Art and Advertising Design .....	3	9	6
	<hr/>	<hr/>	<hr/>
	10	21	17

Fourth Quarter	C	L	CH
T-ENG 204 Oral Communications .....	3	0	3
T-CAT 205 Advertising Copywriting .....	3	0	3
T-CAT 212 Advertising Illustration .....	1	3	2
T-CAT 224 Commercial Art and Advertising Design .....	3	9	6
Elective .....			4
	<hr/>	<hr/>	<hr/>
	10	12	18

Fifth Quarter	C	L	CH
Social Science Elective .....	3	0	3
T-CAT 213 Advertising Illustration .....	1	3	2
T-CAT 217 Photography .....	2	6	4
T-CAT 225 Commercial Art and Advertising Design .....	3	9	6
Elective .....			4
	<hr/>	<hr/>	<hr/>
	9	18	19

Sixth Quarter	C	L	CH
Social Science Elective .....	3	0	3
T-CAT 214 Advertising Illustration .....	1	3	2
T-CAT 226 Commercial Art and Advertising Design .....	3	9	6
T-CAT 235 Advertising Art Direction .....	5	0	5
Elective .....			3
	<hr/>	<hr/>	<hr/>
	12	12	19
	<hr/>	<hr/>	<hr/>
Total			108

“Manipulative laboratory” involves development of skills and job proficiency. Credit of one quarter hour for each three hours of laboratory.  
C=Class Hrs. Per Week      L=Lab Hrs. Per Week      CH=Credit Hrs. Per Qtr



## ELECTIVES

Electives for the **Commercial Art & Advertising Design Curriculum** will be selected from the following courses. The school may determine which of these are to be offered in any given quarter of the program.

	C	L	Cr
T-ART 1065 History of Art I .....	4	0	4
T-ART 1075 History of Art II .....	4	0	4
T-BUS 232 Sales Development .....	3	0	3
T-CAT 231 Painting with Polymers .....	2	6	4
T-ENG 206 Business Communication .....	3	0	3
T-PSY 221 Psychology of Color .....	3	0	3
T-SSC 201 Social Science .....	3	0	3
T-SSC 202 Social Science .....	3	0	3
T-PSY 206 Applied Psychology .....	3	0	3
T-ECO 102 Economics .....	3	0	3
T-SSC 205 American Institutions .....	3	0	3
T-POL 201 United States Government .....	3	0	3

# BUSINESS TECHNOLOGY







## BUSINESS ADMINISTRATION

### Purpose of Curriculum

In North Carolina the opportunities in business are increasing. With the increasing population and industrial development in this State, business has become more competitive and automated. Better opportunities in business will be filled by students with specialized education beyond the high school level. The Business Administration Curriculum is designed to prepare the student for employment in one of many occupations common to business. Training is aimed at preparing the student in many phases of administrative work that might be encountered in the average business.

The specific objectives of the Business Administration Curriculum are to develop the following competencies:

1. Understanding of the principles of organization and management in business operations.
2. Understanding our economy through study and analysis of the role of production and marketing.
3. Knowledge in specific elements of accounting, finance, and business law.
4. Understanding and skill in effective communication for business.
5. Knowledge of human relations as they apply to successful business operations in a rapidly expanding economy.

### Job Description

The graduate of the Business Administration Curriculum may enter a variety of career opportunities from beginning sales person or office clerk to manager trainee. The duties and responsibilities of this graduate vary in different firms. These encompassments might include: making up and filing reports, tabulating and posting data in various books, sending out bills, checking calculations, adjusting complaints, operating various office machines, and assisting managers in supervising. Positions are available in

businesses such as advertising; banking; credit; finance; retailing; wholesaling; hotel, tourist, and travel industry; insurance; transportation; and communications.

SUGGESTED CURRICULUM BY QUARTERS

COURSE TITLE	C	L	CH
First Quarter			
T-ENG 101 Grammar .....	3	0	3
T-BUS 115 Business Law .....	3	0	3
T-Bus 102 Typewriting I .....	2	3	3
T-MAT 110 Business Mathematics .....	5	0	5
T-BUS 101 Introduction to Business .....	5	0	5
	<hr/>	<hr/>	<hr/>
	18	3	19
Second Quarter	C	L	CH
T-ENG 102 Composition .....	3	0	3
T-Elective .....	3	0	3
T-BUS 120 Accounting .....	5	2	6
T-ECO 102 Economics .....	3	0	3
T-BUS 116 Business Law .....	3	0	3
	<hr/>	<hr/>	<hr/>
	17	2	18
Third Quarter	C	L	CH
T-ENG 204 Oral Communication .....	3	0	3
T-BUS 121 Accounting .....	5	2	6
T-ECO 104 Economics .....	3	0	3
T-EDP 103S Concept of Data Processing .....	4	0	4
T-BUS 110 Office Machines .....	2	2	3
	<hr/>	<hr/>	<hr/>
	17	4	19
Fourth Quarter	C	L	CH
T-ENG 103 Report Writing .....	3	0	3
T-BUS 239 Marketing .....	5	0	5
T-BUS 123 Finance .....	3	0	3
T-BUS 272 Supervision .....	3	0	3
Business Elective .....	3	0	3
	<hr/>	<hr/>	<hr/>
	17	0	17
Fifth Quarter	C	L	CH
T-ENG 206 Business Communication .....	3	0	3
T-BUS 243 Advertising .....	4	0	4
T-BUS 235 Business Management .....	3	0	3
T-BUS 124 Finance .....	3	0	3
T-Social Science Elective .....	3	0	3
	<hr/>	<hr/>	<hr/>
	16	0	16

Sixth Quarter	C	L	CH
T-BUS 229 Taxes .....	3	2	4
T-BUS 271 Office Management .....	3	0	3
T-BUS 232 Sales .....	3	0	3
T-Social Science Elective .....	3	0	3
T-Business Elective .....	6	0	6
	<hr/>	<hr/>	<hr/>
	18	2	19
Total			108

### ELECTIVES

Electives for the **Business Administration Curriculum** may be selected from the following courses. The school may determine which of these are to be offered in any given quarter of the program.

### BUSINESS ADMINISTRATION

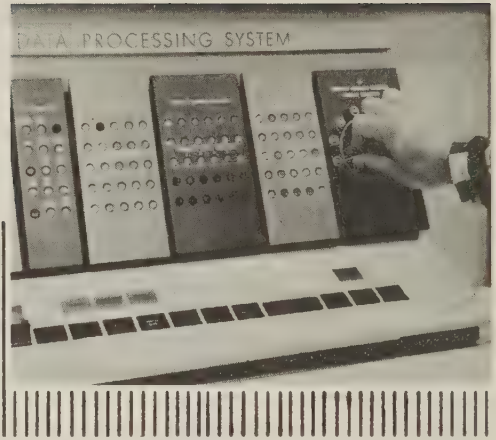
COURSE TITLE	C	L	CH
T-BUS 247 Business Insurance .....	3	0	3
T-BUS 219 Credit Procedures and Problems .....	3	0	3
T-BUS 255 Interpreting Accounting Records .....	3	0	3
T-BUS 233 Personnel Management .....	3	0	3
T-BUS 245 Retailing .....	3	0	3
T-BUS 237 Wholesaling .....	3	0	3
T-BUS 266 Budget and Record Keeping .....	3	0	3
T-BUS 217 Business Law .....	3	0	3
T-BUS 300S Current Trends in Business .....	2	4	4

### SOCIAL SCIENCE

	C	L	Cr
T-SSC 201 Social Science .....	3	0	3
T-SSC 202 Social Science .....	3	0	3
T-SSC 205 American Institutions .....	3	0	3
T-POL 201 United States Government .....	3	0	3
T-PSY 206 Applied Psychology .....	3	0	3

“Manipulative laboratory” involves development of skills and job proficiency. Credit of one quarter hour for each three hours of laboratory.  
 C=Class Hrs. Per Week            L=Lab Hrs. Per Week            CH=Credit Hrs. Per Qtr.

## BUSINESS DATA PROCESSING



### Purpose of Curriculum

The processing of data by electronic equipment has created vast changes in business and industry. Nowhere are these changes more apparent than in the occupations associated with the handling of business information. Much of the routine and time-consuming work of obtaining, compiling and reporting the information necessary for a business to operate can now be adapted to machine processing.

This curriculum is designed to give the student (1) an understanding of the principles of business operation, (2) experience with techniques and handling business data, and (3) functional competence in the application of data processing systems, and experience in computer programming of business records and accounts, inventory, sales, and income and expenditures essential to business and to management decisions.

Emphasis is upon business data processing and use of machines in solving business problems.

### Job Description

The business data processing specialist applies currently available programming techniques to a defined problem with minimum supervision. He analyzes and defines systems requirements to develop a program for electronic data processing; conducts detailed analyses of systems requirements, and develops all levels of block diagrams and logical flow charts. Translates program details into coded instructions; establishes test data; tests, refines, and revises program and documents the procedures. Ascertains if other combinations of instruction would achieve greater flexibility, better machine utilization, or more dependable results. He may prepare a complete set of operating instructions for use by a console operator; on occasion, operates the console in processing program.



# SUGGESTED CURRICULUM BY QUARTERS

## COURSE TITLE

First Quarter	C	L	CH
T-ENG 101 Grammar .....	3	0	3
T-MAT 101 Technical Mathematics .....	5	0	5
T-MAT 121 Numbering System and Boolean Algebra .....	4	0	4
T-EDP 101 Functional Wiring Principles .....	2	3°	3
T-EDP 104 Introduction to Data Processing Systems .....	3	2	4
	<hr/>	<hr/>	<hr/>
	17	5	19

Second Quarter	C	L	CH
T-ENG 102 Composition .....	3	0	3
T-MAT 102 Technical Mathematics .....	5	0	5
T-EDP 106 Business Programming .....	2	4	4
T-EDP 102 Functional Wiring Principles .....	2	3°	3
T-BUS 120 Accounting .....	5	2	6
	<hr/>	<hr/>	<hr/>
	17	9	21

Third Quarter	C	L	CH
T-ENG 103 Report Writing .....	3	0	3
T-EDP 108 Scientific Programming .....	2	4	4
T-MAT 103 Technical Mathematics .....	5	0	5
T-MAT 214 Statistics .....	5	0	5
	<hr/>	<hr/>	<hr/>
	15	4	17

Fourth Quarter	C	L	CH
T-ENG 204 Oral Communication .....	3	0	3
T-EDP 202 Programming System Techniques .....	3	4	5
T-BUS 121 Accounting .....	5	2	6
T-BUS 110 Office Machines .....	2	2	3
	<hr/>	<hr/>	<hr/>
	13	8	17

Fifth Quarter	C	L	CH
Social Science Elective .....	3°	0	3
T-EDP 205 Linear Programming & Critical Path Method .....	4	2	5
T-BUS 225 Cost Accounting .....	3	2	4
T-BUS 115 Business Law .....	3°	0	3
T-BUS 235 Business Management .....	3	0	3
	<hr/>	<hr/>	<hr/>
	16	4	18

**Sixth Quarter**

	C	L	CH
Social Science Elective .....	3	0	3
T-EDP 216 Research Project .....	1	8	5
T-BUS 116 Business Law .....	3	0	3
Elective .....	6	0	6
	<hr/>	<hr/>	<hr/>
	13	8	17
Total			<hr/>
			109

C=Class Hrs. Per Week

L=Lab Hrs. Per Week

CH=Credit Hrs. Per Qtr.

\*"Manipulative laboratory" involves development of skills and job proficiency. Credit of one quarter hour for each three hours of laboratory.

**ELECTIVES**

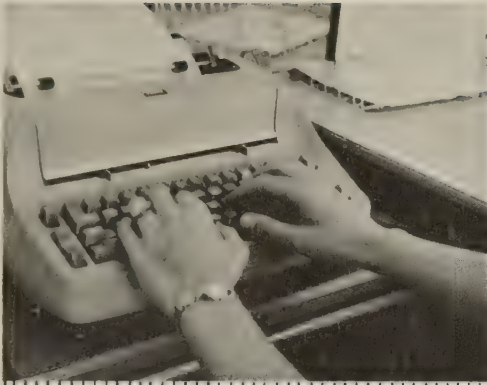
Electives for the **Business Data Processing Curriculum** will be selected from the following courses. The school may determine which of these are to be offered in any given quarter of the program.

**BUSINESS DATA PROCESSING**

COURSE TITLE	C	L	Cr
T-MAT 215S Statistical Programming .....	3	2	4
T-EDP 219 Systems and Procedures .....	3	4	5
T-EDP 211 Procedures and Techniques of Automated Design .....	4	4	6
T-EDP 260 Introduction to System 360 .....	3	0	3

**SOCIAL SCIENCE**

T-SSC 201 Social Science .....	3	0	3
T-PSY 206 Applied Psychology .....	3	0	3
T-ECO 102 Economics .....	3	0	3
T-SSC 205 American Institutions .....	3	0	3
T-POL 201 United States Government .....	3	0	3



## MEDICAL SECRETARY

### PURPOSE OF CURRICULUM

The demand for better qualified medical secretaries in our ever-expanding medical profession is becoming more acute. The purpose of this curriculum is to outline a training program that will provide specialized training in the accepted procedures required by the medical profession, and to enable persons to become proficient soon after accepting employment in the medical and health occupations.

The Medical Secretary Curriculum is designed to offer the students the necessary secretarial skills in typing, dictation, transcription, and terminology for employment in the medical profession. The special training in secretarial subjects is supplemented by related courses in mathematics, accounting, business law, and personality development.

### Job Description

The graduate of the Medical Secretary Curriculum should have a knowledge of medical terminology, skill in dictation and accurate transcription of medical records, reports and letters. The duties of a medical secretary may consist of: taking dictation and transcribing letters, memoranda and reports, meeting office callers and screening telephone calls, filing, and scheduling appointments. The graduate may enter a secretarial position in a variety of offices such as physicians', private and public hospitals, federal and state health programs, and the drug and pharmaceutical industry.

## SUGGESTED CURRICULUM BY QUARTERS

### COURSE TITLE

#### First Quarter

**C L CH**

T-ENG 101 Grammar .....	3	0	3
T-BUS 102 Typewriting .....	2	3°	3
T-MAT 110 Business Mathematics .....	5	0	5
T-BUS 101 Introduction to Business .....	5	0	5
T-BUS 106 Shorthand .....	3	2	4
	<hr/>	<hr/>	<hr/>
	18	5	20

#### Second Quarter

**C L CH**

T-ENG 102 Composition .....	3	0	3
T-BUS 103 Typewriting .....	2	3°	3
T-BUS 107 Shorthand .....	3	2	4
T-BUS 120 Accounting .....	5	2	6
Social Science Elective .....	3	0	3
	<hr/>	<hr/>	<hr/>
	16	7	19

#### Third Quarter

**C L CH**

T-ENG 204 Oral Communications .....	3	0	3
T-BUS 104 Typewriting .....	2	3°	3
T-BUS 108 Shorthand .....	3	2	4
T-BUS 110 Office Machines .....	2	2	3
T-BUS 112 Filing .....	3	0	3
T-BUS 182MS Anatomy .....	3	0	3
	<hr/>	<hr/>	<hr/>
	16	7	19

#### Fourth Quarter

**C L CH**

T-ENG 103 Report Writing .....	3	0	3
T-BUS 206M Dictation and Transcription .....	3	2	4
T-BUS 205 Advanced Typewriting .....	2	3°	3
T-BUS 211 Office Machines .....	2	2	3
T-EDP 103S Concepts of Data Processing .....	4	0	4
T-BUS 183M Terminology and Vocabulary .....	3	0	3
	<hr/>	<hr/>	<hr/>
	17	7	20

#### Fifth Quarter

**C L CH**

T-ENG 206 Business Communication .....	3	0	3
T-BUS 207M Dictation and Transcription .....	3	2	4
T-BUS 115 Business Law .....	3	0	3
Social Science Elective .....	3	0	3
T-BUS 284M Terminology and Vocabulary .....	3	0	3
	<hr/>	<hr/>	<hr/>
	15	2	16

\*"Manipulative laboratory" involves development of skills and job proficiency. Credit of one quarter hour for each three hours of laboratory.



Sixth Quarter	C	L	CH
T-BUS 208M Dictation and Transcription .....	3	2	4
T-BUS 271 Office Management .....	3	0	3
T-BUS 214 Secretarial Procedures .....	3	2	4
Elective .....	3	0	3
	<hr/>	<hr/>	<hr/>
	12	4	14
	Total		108

ELECTIVES

Electives for the **Medical Secretarial Curriculum** may be selected from the following courses. The school may dtermine which of these are to be offered in any given quarter of the program.

MEDICAL SECRETARY

	C	L	Cr
T-BUS 121 Accounting .....	5	2	6
T-BUS 215M Office Application .....	6	0	6
T-ECO 108 Consumer Economics .....	3	0	3
T-ECO 102 Economics .....	3	0	3
T-PSY 112 Personality Development .....	3	0	3
T-BUS 116 Business Law .....	3	0	3

SOCIAL SCIENCE

T-SSC 201 Social Science .....	3	0	3
T-SSC 202 Social Science .....	3	0	3
T-PSY 206 Applied Psychology .....	3	0	3
T-SSC 205 American Institutions .....	3	0	3
T-POL 201 United States Government .....	3	0	3

C=Class Hrs. Per Week

L=Lab Hrs. Per Week

CH=Credit Hrs. Per Qtr.

## SCIENTIFIC DATA PROCESSING



### Purpose of Curriculum

The processing of data by electronic equipment has created vast changes in scientific research and industry. The curriculum of Scientific Data Processing is designed, especially in the second year, to assist students in preparing for the new techniques and stresses mathematics in each of the six quarters of work. The program provides graduates qualified to:

1. Apply currently available programming techniques to a defined problem with minimum supervision.
2. Program and operate any computer with a minimum of orientation.
3. Understand and master special techniques as the need occurs.
4. Communicate their properly documented programming decisions to personnel concerned.

Emphasis in the second year of the curriculum is upon scientific data processing. Machines are used in the solution of research, production and engineering problems.

Students learn calculus, numerical analysis, theory of probability and statistics.

### Job Description

The scientific data processing specialist analyzes and defines requirements to develop program for electronic data processing; conducts detailed analyses of systems requirements, and develops all levels of block diagrams and logical flow charts; translates program details into coded instructions; develops and prepares plans; establishes test data; tests, refines, and revises program. Evaluates and modifies existing programs as procedures or content of reports change.

## SUGGESTED CURRICULUM BY QUARTERS

### COURSE TITLE

#### First Quarter

C L CH

T-ENG 101 Grammar .....	3	0	3
T-MAT 101 Technical Mathematics .....	5	0	5
T-MAT 121 Numbering System and Boolean Algebra .....	4	0	4
T-EDP 101 Functional Wiring Principles .....	2	3	3
T-EDP 104 Introduction to Data Processing Systems .....	3	2	4
	<hr/>	<hr/>	<hr/>
	17	5	19

#### Second Quarter

C L CH

T-ENG 102 Composition .....	3	0	3
T-MAT 102 Technical Mathematics .....	5	0	5
T-EDP 106 Business Programming .....	2	4	4
T-EDP 102 Functional Wiring Principles .....	2	3	3
T-BUS 120 Accounting .....	5	2	6
	<hr/>	<hr/>	<hr/>
	17	9	21

#### Third Quarter

C L CH

T-ENG 103 Report Writing .....	3	0	3
T-EDP 108 Scientific Programming .....	2	4	4
T-MAT 103 Technical Mathematics .....	5	0	5
T-MAT 214 Statistics .....	5	0	5
	<hr/>	<hr/>	<hr/>
	15	4	17

#### Fourth Quarter

C L CH

T-ENG 204 Oral Communication .....	3	0	3
T-EDP 202 Programming System Techniques .....	3	4	5
T-MAT 201 Technical Mathematics .....	5	0	5
T-PHY 101 Physics: Properties of Matter .....	3	2	4
	<hr/>	<hr/>	<hr/>
	14	6	17

#### Fifth Quarter

C L CH

Social Science Elective .....	3	0	3
T-EDP 205 Linear Programming and Critical Path Method .....	2	4	4
T-PHY 102 Physics: Work, Energy, Power .....	3	2	4
T-MAT 225 Numerical Analysis .....	5	0	5
	<hr/>	<hr/>	<hr/>
	13	6	16

\*“Manipulative laboratory” involves development of skills and job proficiency. Credit of one quarter hour for each three hours of laboratory.

Sixth Quarter	C	L	CH
Social Science Elective .....	3	0	3
T-EDP 216 Research Project .....	1	8	5
T-PHY 103 Physics: Electricity .....	3	2	4
Elective .....	6	0	6
	<hr/>	<hr/>	<hr/>
	13	10	18
Total			108

### ELECTIVES

Electives for the **Scientific Data Processing Curriculum** will be selected from the following courses. The school may determine which of these are to be offered in any given quarter of the program.

### SCIENTIFIC DATA PROCESSING

	C	L	Cr
T-MAT 215 Statistical Programming .....	3	2	4
T-MAT 219 Differential Equations .....	5	0	5
T-EDP 260 Introduction to System 360 .....	3	0	3

### SOCIAL SCIENCE

T-SSC 201 Social Science .....	3	0	3
T-SSC 202 Social Science .....	3	0	3
T-PSY 206 Applied Psychology .....	3	0	3
T-ECO 102 Economics .....	3	0	3
T-SSC 205 American Institutions .....	3	0	3
T-POL 201 United States Government .....	3	0	3





## TECHNICAL SECRETARY

### Purpose of Curriculum

The Technical Secretary Curriculum is designed to prepare a student for a position in the office of a firm dealing in research, development and production in the scientific fields. The curriculum offers students the necessary secretarial skills and the required background of understanding and appreciation of the scientific method, the beginnings of a technical vocabulary and a feeling of respect for accuracy that will be essential in later work in the field.

### Job Description

Graduates of this program may qualify for employment as stenographer-secretaries, technical secretaries, and possibly as private secretaries. They are in demand where engineers and other technical personnel find a need for secretarial help who can understand the specialized language of Electrical, Mechanical, Civil, or Chemical Engineers. The duties of an engineering and technical secretary may consist of taking dictation and transcribing letters, memoranda and reports, meeting office callers and screening telephone calls, filing, and scheduling appointments. Graduates of this program, since they have received a background of science and engineering terminology in addition to their business background, are admirably prepared to work with engineering reports, records and correspondence.

## SUGGESTED CURRICULUM BY QUARTERS

### COURSE TITLE

#### First Quarter

	C	L	CH
T-ENG 101 Grammar .....	3	0	3
T-BUS 102 Typewriting .....	2	3	3
T-MAT 110 Business Mathematics .....	5	0	5
T-BUS 101 Introduction to Business .....	5	0	5
T-BUS 106 Shorthand .....	3	2	4
	<hr/>	<hr/>	<hr/>
	18	5	20

#### Second Quarter

	C	L	CH
T-ENG 102 Composition .....	3	0	3
T-BUS 103 Typewriting .....	2	3	3
T-BUS 107 Shorthand .....	3	2	4
T-BUS 120 Accounting .....	5	2	6
Social Science Elective .....	3	0	3
	<hr/>	<hr/>	<hr/>
	16	7	19

#### Third Quarter

	C	L	CH
T-ENG 204 Oral Communications .....	3	0	3
T-BUS 104 Typewriting .....	2	3	3
T-BUS 108 Shorthand .....	3	2	4
T-BUS 110 Office Machines .....	2	2	3
T-BUS 112 Filing .....	3	0	3
T-BUS 183T Terminology and Vocabulary .....	3	0	3
	<hr/>	<hr/>	<hr/>
	16	7	19

#### Fourth Quarter

	C	L	CH
T-ENG 103 Report Writing .....	3	0	3
T-BUS 206T Dictation and Transcription .....	3	2	4
T-BUS 205 Advanced Typewriting .....	2	3	3
T-BUS 211 Office Machines .....	2	2	3
T-EDP 103 Concepts of Data Processing .....	4	0	4
Elective .....	3	0	3
	<hr/>	<hr/>	<hr/>
	17	7	20

#### Fifth Quarter

	C	L	CH
T-ENG 206 Business Communication .....	3	0	3
T-BUS 207T Dictation and Transcription .....	3	2	4
T-BUS 115 Business Law .....	3	0	3
Social Science Elective .....	3	0	3
Elective .....	3	0	3
	<hr/>	<hr/>	<hr/>
	15	2	16

Sixth Quarter	C	L	CH
T-BUS 208T Dictation and Transcription .....	3	2	4
T-BUS 271 Office Management .....	3	0	3
T-BUS 214 Secretarial Procedures .....	3	2	4
Elective .....	3	0	3
	<hr/>	<hr/>	<hr/>
	12	4	14
	Total		108

## ELECTIVES

Electives for the **Technical Secretarial Curriculum** may be selected from the following courses. The school may determine which of these are to be offered in any given quarter of the program.

## TECHNICAL SECRETARY

	C	L	Cr
T-PSY 112 Personality Development .....	3	0	3
T-BUS 121 Accounting .....	5	2	6
T-ECO 102 Economics .....	3	0	3
T-BUS 215T Office Application .....	6	0	6
T-ECO 108 Consumer Economics .....	3	0	3
T-BUS 116 Business Law .....	3	0	3

## SOCIAL SCIENCE

	C	L	Cr
T-SSC 201 Social Science .....	3	0	3
T-SSC 202 Social Science .....	3	0	3
T-PSY 206 Applied Psychology .....	3	0	3
T-SSC 205 American Institutions .....	3	0	3
T-POL 201 United States Government .....	3	0	3

“Manipulative laboratory” involves development of skills and job proficiency. Credit of one quarter hour for each three hours of laboratory.

C=Class Hrs. Per Week

L=Lab Hrs. Per Week

CH=Credit Hrs. Per Qtr.





# ENGINEERING TECHNOLOGY





## AIR CONDITIONING AND REFRIGERATION TECHNOLOGY

### Purpose of Curriculum

In recent years the use of air-conditioning and refrigeration equipment has increased tremendously. Practically all new building construction for business and commercial use have "year-round" air-conditioning systems. Many homes now have air conditioning and the trend is toward greater use of "year-round" systems for cooling and heating. Transportation systems and food industries are requiring greater use of refrigeration systems for transit, storage and display of products. With this great upswing in the use of air-conditioning and refrigeration equipment, a greater demand is made on trained personnel to plan and supervise installations and to supervise the operation and maintenance of this equipment.

The curriculum is designed to prepare the student to assist in planning, installing, operating and maintaining air conditioning equipment. The required technical information is presented and related skills are developed which will enable the graduate to function efficiently when working with engineers, systems designers, skilled craftsmen, salesmen, and others in the field. Considerable emphasis is placed on self-development in an effort to encourage the graduate to continue to study and grow as the industry advances.

### Job Description

The air conditioning and refrigeration technician may be employed in areas of sales, installation, maintenance, production drafting, systems design, or as a research engineering assistant. He is involved with equipment for regulating temperature and humidity. He works with control systems, ducts and piping for distribution of air, water, steam, and refrigerants. His duties may be concerned with any or all of these systems and components.

## SUGGESTED CURRICULUM BY QUARTERS

### COURSE TITLE

#### First Quarter

C L CH

T-ENG 101 Grammar .....	3	0	3
T-MAT 101 Technical Mathematics .....	5	0	5
T-PHY 101 Physics: Properties of Matter .....	3	2	4
T-DFT 101 Technical Drafting .....	1	6°	3
T-AHR 101 Fundamentals of Refrigeration I .....	4	3°	5
	<hr/>	<hr/>	<hr/>
	16	11	20

#### Second Quarter

C L CH

T-ENG 102 Composition .....	3	0	3
TM-AT 102 Technical Mathematics .....	5	0	5
T-PHY 102 Physics: Work, Energy, Power .....	3	2	4
T-DFT 102 Technical Drafting .....	1	6°	3
T-AHR 102 Fundamentals of Refrigeration II .....	3	6°	5
	<hr/>	<hr/>	<hr/>
	15	14	20

#### Third Quarter

C L CH

T-ENG 103 Report Writing .....	3	0	3
T-MAT 103 Technical Mathematics .....	5	0	5
T-PHY 103 Physics: Electricity .....	3	2	4
T-AHR 103 Commercial Refrigeration Systems Designs .....	3	6°	5
	<hr/>	<hr/>	<hr/>
	14	8	17

#### Fourth Quarter

C L CH

T-ENG 204 Oral Communication .....	3	0	3
T-DFT 204 Description Geometry .....	2	4	4
T-PHY 231 Fluid Mechanics .....	3	0	3
T-AHR 201 Heating Principles .....	3	4	5
T-AHR 216 Circuits & Controls I .....	3	3°	4
	<hr/>	<hr/>	<hr/>
	14	11	19

#### Fifth Quarter

C L CH

Social Science Elective .....	3	0	3
T-AHR 203 Air Conditioning Principles .....	5	6°	7
T-DFT 226 Air Conditioning Systems Drawing .....	0	6°	2
Elective .....	<hr/>	<hr/>	<hr/>
	8	12	16

°“Manipulative laboratory” involves development of skills and job proficiency. Credit of one quarter hour for each three hours of laboratory.

C=Class Hrs. Per Week

L=Lab Hrs. Per Week

CH=Credit Hrs. Per Qtr.



Sixth Quarter	C	L	CH
Social Science Elective .....	3	0	3
T-AHR 209 Air Conditioning Systems Design .....	5	6	7
T-AHR 227 Estimating & Contracts .....	3	6	5
Elective .....			3
	11	12	18
Total	110		

### ELECTIVES

Electives for the **Air Conditioning and Refrigeration Technology Curriculum** will be selected from the following courses. The school may determine which of these are to be offered in any given quarter of the program.

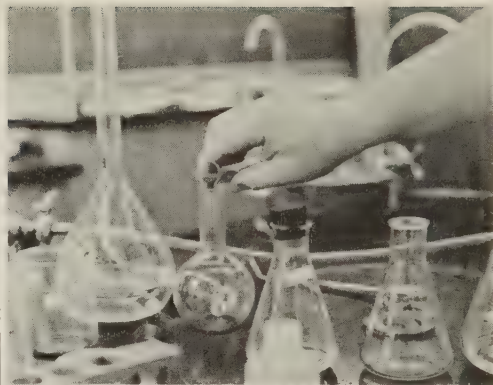
### TECHNICAL

	C	L	Cr
T-AHR 217 Circuits and Controls II .....	3	3	4
T-AHR 230 Seminar and Research .....	1	4	3
T-AHR 210 Installation and Design Problems .....	2	6	4
T-AHR 202 Fuels and Burners .....	2	3	3

### SOCIAL SCIENCE

T-SSC 201 Social Science I .....	3	0	3
T-SSC 202 Social Science II .....	3	0	3
T-PSY 206 Applied Psychology .....	3	0	3
T-ECO 102 Economics .....	3	0	3
T-SSC 205 American Institutions .....	3	0	3
T-POL 201 United States Government .....	3	0	3
T-ISC 201 Industrial Organization and Management .....	3	0	3

## CHEMICAL TECHNOLOGY



### Purpose of Curriculum

This curriculum guide provides a program for instruction of students in the basic knowledge and skills involved in laboratory and plant operations of the chemical industry. Technical knowledge and laboratory techniques are emphasized and a relationship between the theoretical and practical maintained.

The curriculum is designed to prepare persons to serve in two distinct roles: (1) research assistant to a chemist in the laboratory; and (2) planning and production assistant to chemical engineers in converting the research chemist's discoveries into actual industrial production. Research laboratory assistants must be well grounded in chemical analysis, testing, and synthesis. Chemical production assistants must have command of a basic knowledge of chemical processing and ability to use main types of equipment and machinery for making chemical products.

### Job Description

The chemical technician performs quantitative and qualitative chemical analyses of processes involved in a production situation. Tests samples of raw materials to determine that they are within specification limits required for manufacturing of desired products. Analyzes samples of product intermediates at manufacturing steps so as to supply data to processing personnel by which they may control reactions involved, to determine whether processing is being performed according to plant specifications, and to solve current production problems. Analyzes samples of finished products to determine whether quality warrants its release for shipment, using analytical methods to determine percentages, such as acetone extract, heating loss, or ash content. Prepares laboratory test reports and checks analyses with specifications and consults with laboratory supervisors. Makes special analyses as necessary. May secure samples used.

## SUGGESTED CURRICULUM BY QUARTERS

### COURSE TITLE

First Quarter	C	L	CH
T-ENG 101 Grammar .....	3	0	3
T-MAT 101 Tech. Math .....	5	0	5
T-DFT 101 Tech. Drafting .....	1	6°	3
T-CHM 111 General Chemistry I .....	4	3°	5
Social Science Elective .....	3	0	3
	<hr/>	<hr/>	<hr/>
	15	9	19

Second Quarter	C	L	CH
T-ENG 102 Composition .....	3	0	3
T-MAT 102 Tech. Math .....	5	0	5
T-PHY 101 Properties of Matter .....	3	2	4
T-DFT 102 Tech. Drafting .....	1	6°	3
T-CHM 112 General Chemistry II .....	4	3°	5
	<hr/>	<hr/>	<hr/>
	15	11	20

Third Quarter	C	L	CH
T-ENG 103 Report Writing .....	3	0	3
T-MAT 103 Tech. Math .....	5	0	5
T-PHY 102 Work Energy and Power .....	3	2	4
T-CHM 113S General Chemistry III .....	4	3°	5
T-CHM 250S Qualitative Analysis .....	2	4	4
	<hr/>	<hr/>	<hr/>
	17	9	21

Fourth Quarter	C	L	CH
T-ENG 204 Oral Communication .....	3	0	3
T-CHM 121 Quantitative Analysis I .....	3	6°	5
T-CHM 227 Physical Chemistry .....	3	2	4
T-PHY 103 Electricity .....	3	2	4
Social Science Elective .....	3	0	3
	<hr/>	<hr/>	<hr/>
	15	10	19

Fifth Quarter	C	L	CH
T-CHM 222 Quantitative Analysis II .....	2	9°	5
T-CHM 231 Organic Chemistry I .....	3	6°	5
T-PHY 104 Light and Sound .....	3	2	4
Electives .....	5	0	5
	<hr/>	<hr/>	<hr/>
	13	17	19

Sixth Quarter	C	L	CH
T-CHM 232 Organic Chemistry II .....	3	6°	5
T-CHM 241 Industrial Chem. Analysis I .....	3	9°	6
Electives .....			3
			<hr/> 14

Seventh Quarter	C	L	CH
T-CHM 233 Organic Chemistry III .....	3	6	5
T-CHM 242 Industrial Chem. Analysis II .....	3	12	7
Electives .....			3
			<hr/> 15
Total			127

### ELECTIVES

Electives for the **Chemical Technology Curriculum** will be selected from the following courses. The school may determine which of these are to be offered in any given quarter of the program.

### TECHNICAL

T-MEC 116 Engineering Materials .....	3	0	3
T-MAT 201 Technical Mathematics .....	5	0	5
T-MAT 219 Differential Equations .....	5	0	5
T-PHY 104 Physics: Light and Sound .....	3	2	4
T-PHY 231 Fluid Mechanics .....	3	0	3

### SOCIAL SCIENCE

T-SSC 201 Social Science .....	3	0	3
T-SSC 202 Social Science .....	3	0	3
T-PSY 206 Applied Psychology .....	3	0	3
T-ECO 102 Economics .....	3	0	3
T-SSC 205 American Institutions .....	3	0	3
T-POL 201 United States Government .....	3	0	3
T-ISC 201 Industrial Organization and Management .....	3	0	3

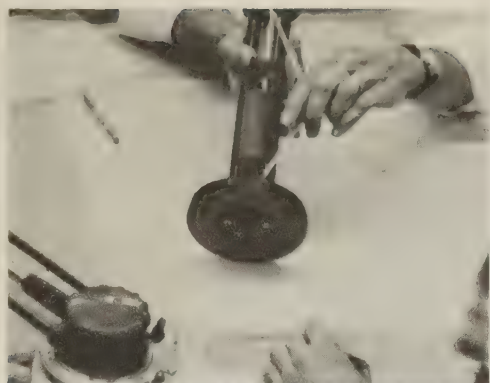
\*“Manipulative laboratory” involves development of skills and job proficiency. Credit of one quarter hour for each three hours of laboratory.

C=Class Hrs. Per Week

L=Lab Hrs. Per Week

CH=Credit Hrs. Per Qtr.





## DRAFTING AND DESIGN TECHNOLOGY

### Purpose of Curriculum

This curriculum guide was prepared for the purpose of outlining a training program for students of mechanical drafting and design technology. There are certain identifiable duties which are common to all technicians of this general classification and which comprise the basic areas of technical knowledge they need. This curriculum has been designed for training persons in the accepted performance of these basic duties that will be assigned, and to enable the individual student to become proficient in a short time after he becomes employed in the industry.

Courses in general education have been included to give a student the assurance and understanding that comes with education upon a broad base. The technician associates with many levels of thought and expression—administrative personnel, scientists, engineers, skilled workmen—and must be able to communicate effectively with all levels. Courses containing essential information from related subject areas, such as mathematics, physics, and mechanics have been included in order to provide the student a better academic base for his training. Emphasis is placed upon ability to think and plan, as well as drafting procedures and techniques.

### Job Description

Mechanical drafting and design technicians are concerned with the preparation of drawings for design proposals, for experimental models and items for production use.

These technicians perform many aspects of drafting in a specialized field, such as the developing of the drawing of a section, sub-assembly or major component. Investigating design factors and availability of material and equipment, production methods and facilities are frequent assignments. They assist in the design of units and controls from specifications by

utilizing drawings of existing units and reports on functional performance. They may draw components in industrial fields based on engineers' original design concepts or specific ideas. Also, they may be assigned as coordinators for the execution of related work of other design, production, tooling, material and planning groups. Technicians with experience in this classification may often supervise the preparation of working drawings.

These technicians are employed in many types of manufacturing, fabrication, research development and service industries. Substantial numbers also are employed in communications, transportation, public utilities, consulting engineering firms, and federal, state, and local governments.

SUGGESTED CURRICULUM BY QUARTERS

COURSE TITLE

First Quarter	C	L	CH
T-ENG 101 Grammar .....	3	0	3
T-MAT 101 Technical Mathematics .....	5	0	5
T-PHY 101 Physics: Properties of Matter .....	3	2	4
T-DFT 101 Technical Drafting .....	1	6°	3
T-MEC 101 Machine Processes .....	0	6°	2
	12	14	17

Second Quarter	C	L	CH
T-ENG 102 Composition .....	3	0	3
T-MAT 102 Technical Mathematics .....	5	0	5
T-PHY 102 Physics: Work, Energy, Power .....	3	2	4
T-DFT 102 Technical Drafting .....	1	6°	3
T-MEC 102 Machine Processes .....	0	6°	2
	12	14	17

Third Quarter	C	L	CH
T-ENG 103 Report Writing .....	3	0	3
T-MAT 103 Technical Mathematics .....	5	0	5
T-PHY 103 Physics: Electricity .....	3	2	4
T-PHY 106 Applied Mechanics .....	5	0	5
T-DFT 103 Technical Drafting 1.....	1	6°	3
	17	8	20

Fourth Quarter	C	L	CH
T-ENG 204 Oral Communication .....	3	0	3
T-DFT 201 Technical Drafting .....	2	6°	4
T-DFT 204 Descriptive Geometry .....	2	4	4
T-MEC 205 Strength of Materials .....	3	2	4
T-MEC 210 Physical Metallurgy .....	3	3	4
	13	15	19

Fifth Quarter	C	L	CH
Social Science Elective .....	3	0	3
T-DFT 205 Design Drafting I .....	2	6	4
T-DFT 211 Mechanisms .....	3	2	4
T-MEC 211 Physical Metallurgy .....	3	3	4
Elective .....			4
	<hr/>	<hr/>	<hr/>
	11	11	19

Sixth Quarter	C	L	CH
Social Science Elective I.....	3	0	3
T-DFT 206 Design Drafting II .....	2	6	4
T-MEC 235 Hydraulics & Pneumatics .....	3	3	4
Elective .....			4
Elective .....			4
	<hr/>	<hr/>	<hr/>
	8	9	19
	Total		111

ELECTIVES

Electives for the **Drafting & Design Technology Curriculum** will be selected from the following courses. The school may determine which of these are to be offered in any given quarter of the program.

TECHNICAL

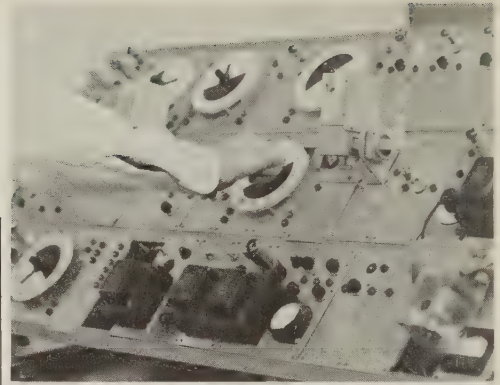
	C	L	Cr
T-DFT 212 Jig and Fixture Design .....	2	6	4
T-ELN 201 Industrial Controls .....	3	2	4
T-ELC 201 Electrical Machinery .....	3	0	3
T-MEC 237 Control Systems .....	2	4	4
T-ISC 201 Industrial Organization and Management .....	3	0	3

SOCIAL SCIENCE

T-SSC 201 Social Science I .....	3	0	3
T-SSC 202 Social Science II .....	3	0	3
T-PSY 206 Applied Psychology .....	3	0	3
T-ECO 102 Economics .....	3	0	3
T-SSC 205 American Institutions .....	3	0	3
T-POL 201 United States Government .....	3	0	3

“Manipulative laboratory” involves development of skills and job proficiency. Credit of one quarter hour for each three hours of laboratory  
C=Class Hrs. Per Week            L=Lab Hrs. Per Week            CH=Credit Hrs. Per Qtr.

## ELECTROMECHANICAL TECHNOLOGY



In this age of automation, more and more equipment and systems utilize combinations of electrical and mechanical devices. Since these most often are intended to function together as single units, they would best be dealt with by persons who understand all aspects of their total operation. Such a person trained in the application of both electrical and mechanical concepts is called an "electromechanical technician". Being versed in both disciplines, this technician would objectively analyze electromechanical problems and devise the most efficient and optimum solutions.

This curriculum is designed to appeal to the exceptional individual who wishes to develop his understanding of electronics and mechanics to the fullest. Along with a strong background in mathematics, he must have an interest and aptitude in both electronics and mechanics, and be able to relate this knowledge to complex systems. A sequence of courses has been arranged to develop these skills in a minimum time of seven quarters. For those who begin this program only to find they prefer a more specialized field, a transfer to either electronics or drafting and design may be arranged with little loss of credit.

### Job Description

The Electromechanical Technician fabricates, tests, analyzes, and adjusts precision electromechanical instruments, such as temperature probes and aerodynamic probes; follows blueprints and sketches; uses handtools, metal working machines, such as bench lathe, milling machine, punch press, and drill press to fabricate housings, fittings, jigs, and holding fixtures; and verifies dimensions, using micrometer and calipers. He also assembles wires, insulation, and electrical components, such as resistors and capacitors, installs electrical assemblies and hardware in housings, using hand tools and soldering equipment; tests assembled instruments for circuit continuity and operational reliability using multimeter, oscilloscope, oscillator, vacuum tube voltmeter, and bridge; analyzes test results and repairs or adjusts



instruments according to analysis, and records test results and writes reports on fabrication techniques. The Electromechanical Technician has potential employment possibilities with industry and business in maintenance, production, research, development or sales as an engineering assistant, engineering aide, or trouble shooter.

SUGGESTED CURRICULUM BY QUARTERS

COURSE TITLE			
First Quarter			
	C	L	CH
T-ENG 101 Grammar	3	0	3
T-MAT 101 Technical Mathematics	5	0	5
T-DFT 101 Technical Drafting	1	6	3
T-ELC 101 Fundamentals of Electricity	4	4	6
	13	10	17
Second Quarter			
	C	L	CH
T-ENG 102 Composition	3	0	3
T-MAT 102 Technical Mathematics	5	0	5
T-DFT 102 Technical Drafting	1	6	3
T-PHY 101 Physics: Properties of Matter	3	2	4
T-ELC 102 Fundamentals of Electricity	4	4	6
	16	12	21
Third Quarter			
	C	L	CH
T-ENG 103 Report Writing	3	0	3
T-MAT 103 Technical Mathematics	5	0	5
T-ELN 105 Control Devices	5	4	7
T-PHY 102 Physics: Work, Energy, Power	3	2	4
	16	6	19
Fourth Quarter			
	C	L	CH
T-ENG 20 Oral Communications	3	0	3
T-MEC 101 Machine Processes	0	6	2
T-MEC 110 Fundamental Mechanisms	2	4	4
T-ELN 101 Electronic Instruments and Measurements	1	4	3
T-CYB 201 Introduction to Electromechanical Systems	3	2	4
	9	16	16
Fifth Quarter			
	C	L	CH
Social Science Elective	3	0	3
T-PHY 104 Physics: Light and Sound	3	2	4
T-ELN 214 Wave Shaping and Pulse Circuits	2	2	3
T-CYB 202 Electromechanical Systems	3	6	5
T-ELN 201 Industrial Controls	3	2	4
	14	12	19

Sixth Quarter	C	L	CH
Social Science Elective .....	3	0	3
T-MEC 235 Hydraulics and Pneumatics .....	3	2	4
T-ELN 240 Digital Computers .....	3	0	3
T-PHY 106 Applied Mechanics .....	5	0	5
T-ELC 201 Electrical Machinery .....	3	0	3
	<u>17</u>	<u>2</u>	<u>18</u>

Seventh Quarter	C	L	CH
T-EDP 104 Introduction to Data Processing Systems .....	3	2	4
T-CYB 203 Electromechanical Systems .....	3	6	6
Electives .....			6
	<u>6</u>	<u>8</u>	<u>16</u>
Total			126

### ELECTIVES

Electives for the Electromechanical Technology Curriculum will be selected from the following courses. The school may determine which of these are to be offered in any given quarter of the program.

### TECHNICAL

	C	L	CH
T-ELN 208 Industrial Electronics .....	4	3	5
T-MEC 205 Strength of Materials .....	3	2	4

### SOCIAL SCIENCE

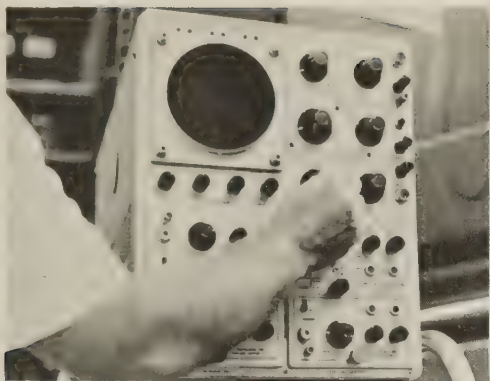
T-SSC 201 Social Science I .....	3	0	3
T-SSC 202 Social Science II .....	3	0	3
T-PSY 206 Applied Psychology .....	3	0	3
T-ECO 102 Economics .....	3	0	3
T-SSC 205 American Institutions .....	3	0	3
T-POL 201 United States Government .....	3	0	3

“Manipulative laboratory” involves development of skills and job proficiency. Credit of one quarter hour for each three hours of laboratory.

C=Class Hrs. Per Week

L=Lab Hrs. Per Week

CH=Credit Hrs. Per Qtr.



## ELECTRONICS TECHNOLOGY

### Purpose of Curriculum

The field of electronics has developed at a rapid pace since the turn of the century. For many years the major concern of electronics was in the area of communications. Developments during World War II and in the period since have revolutionized production techniques. New industries have been established to supplement the need and demand for electronics equipment.

Many opportunities exist for men and women with a technical education in electronics. This curriculum provides a basic background in electronic related theory with practical applications of electronics for business and industry. Courses are designed to develop competent electronics technicians who may take their place as an assistant to an engineer, or as a liaison between the engineer and the skilled craftsman.

### Job Description

The electronics technician may start in one or more of the following areas: research, design, development, production, maintenance or sales. He may be an assistant to an engineer, an engineering aide, laboratory technician, supervisor or equipment specialist. His training is similar to that of an engineer, but in less depth and more practical in application. He can function as a liaison between an engineer and the skilled craftsman.

## SUGGESTED CURRICULUM BY QUARTERS

### COURSE TITLE

First Quarter	C	L	CH
T-ENG 101 Grammar .....	3	0	3
T-MAT 101 Technical Mathematics .....	5	0	5
T-PHY 101 Physics: Properties of Matter .....	3	2	4
T-DFT 101 Technical Drafting .....	1	6°	3
T-ELC 101 Fundamentals of Electricity .....	4	4 or 6	6
	16	12 or 14	20

Second Quarter	C	L	CH
T-ENG 102 Composition .....	3	0	3
T-MAT 102 Technical Mathematics .....	5	0	5
T-PHY 102 Physics: Work, Energy, Power .....	3	2	4
T-DFT 102 Technical Drafting .....	1	6°	3
T-ELC 102 Fundamentals of Electricity .....	4	4 or 6	6
	16	12 or 14	21

Third Quarter	C	L	CH
T-ENG 103 Report Writing .....	3	0	3
T-MAT 103 Technical Mathematics .....	5	0	5
T-ELN 101 Electronic Instruments and Measurements .....	1	4 or 6	3
T-ELN 105 Control Devices .....	5	4 or 6	7
	14	8 or 12	18

Fourth Quarter	C	L	CH
T-ENG 204 Oral Communication .....	3	0	3
T-MAT 201 Technical Mathematics .....	5	0	5
T-PHY 104 Physics: Light and Sound .....	3	2	4
T-ELN 205 Application of Vacuum Tubes and Transistors .....	5	4 or 6	7
	16	6 or 8	19

Fifth Quarter	C	L	CH
Social Science Elective .....	3	0	3
T-ELN 210 Semiconductor Circuit Analysis .....	5	2 or 3	6
T-ELN 214 Wave Shaping and Pulse Circuits .....	2	2 or 3	3
Elective .....	2	2	3
	10	4 or 6	15

\*“Manipulative laboratory” involves development of skills and job proficiency. Credit of one quarter hour for each three hours of laboratory.

C=Class Hrs. Per Week

L=Lab Hrs. Per Week

CH=Credit Hrs. Per Qtr.



Sixth Quarter	C	L	CH
Social Science Elective .....	3	0	3
T-ELN 215 Wave Shaping and Pulse Circuits .....	2	2 or 3	3
T-ELN 220 Electronic Systems .....	5	4 or 6	7
Elective .....	—	—	3
	10	6 or 9	16
	Total		110

### ELECTIVES

Electives for the **Electronics Technology Curriculum** will be selected from the following courses. The school may determine which of these are to be offered in any given quarter of the program.

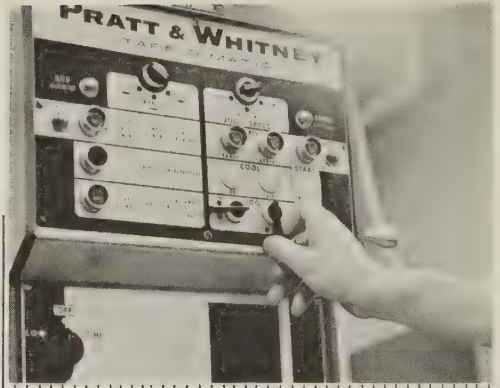
### TECHNICAL

	C	L	Cr
T-ELN 225 Transmission and Propagation .....	3	0	3
T-ELN 227 UHF and Microwave Systems .....	5	4	7
T-ELN 230 Television Systems .....	4	6	7
T-ELN 235 Industrial Instrumentation .....	4	6	7
T-ELN 240 Digital Computers .....	3	0	3
T-ELN 245 Electronic Design Project .....	0	4	2
T-ELC 210 Rotating Devices .....	2	2	3
T-CHM 101 Chemistry .....	4	2	5
T-EDP 104 Introduction to Electronic Data Processing Systems .....	3	2	4
T-MAT 208 Calculus and Laplace Transforms for Electronics .....	5	0	5
T-MEC 110 Fundamental Mechanisms .....	2	4	4

### SOCIAL SCIENCE

	C	L	CH
T-SSC 201 Social Science .....	3	0	3
T-SSC 202 Social Science .....	3	0	3
T-PSY 206 Applied Psychology .....	3	0	3
T-ECO 102 Economics .....	3	0	3
T-SSC 205 American Institutions .....	3	0	3
T-POL 201 United States Government .....	3	0	3

## MANUFACTURING TECHNOLOGY



### Purpose of Curriculum

A primary objective of this program is the training of personnel to assist the engineer or small industry in planning, tooling, operating, servicing, and supervising manufacturing operations. Practically every branch of manufacturing and much research and design make use of the mechanical principles presented in this curriculum. With the increasing importance of automated production, quality control, and production scheduling techniques, the position of the technician in this field has become of primary importance. This curriculum provides basic background of mechanical and related theory with specific skills in the use of manufacturing and testing equipment. The students are given experience in operating and servicing machines accompanied by general education and management courses.

### Job Description

A graduate of this program may qualify for an entry position in one of several manufacturing functions. Methods analysis, production scheduling, quality control, materials testing, plant layout, time study, machine tooling, maintenance, equipment and instrument work are typical of situations where the graduate may be able to function with a minimum of on-the-job training.

## SUGGESTED CURRICULUM BY QUARTERS

### COURSE TITLE

First Quarter	C	L	CH
T-ENG 101 Grammar .....	3	0	3
T-MAT 101 Technical Mathematics .....	5	0	5
T-PHY 101 Physics: Properties of Matter .....	3	2	4
T-DFT 101 Technical Drafting .....	1	6	3
T-MEC 101 Machine Processes .....	0	6	2
	<hr/>	<hr/>	<hr/>
	12	14	17

Second Quarter	C	L	CH
T-ENG 102 Composition .....	3	0	3
T-MAT 102 Technical Mathematics .....	5	0	5
T-PHY 102 Physics: Work, Energy, Power .....	3	2	4
T-DFT 102 Technical Drafting .....	1	6	3
T-MEC 102 Machine Processes .....	0	6	2
	<hr/>	<hr/>	<hr/>
	12	14	17

Third Quarter	C	L	CH
T-ENG 103 Report Writing .....	3	0	3
T-MAT 103 Technical Mathematics .....	5	0	5
T-PHY 103 Physics: Electricity .....	3	2	4
T-PHY 106 Applied Mechanics .....	5	0	5
T-MEC 103 Machine Processes .....	0	6	2
	<hr/>	<hr/>	<hr/>
	16	8	19

Fourth Quarter	C	L	CH
T-ENG 204 Oral Communication .....	3	0	3
T-MEC 205 Strength of Materials .....	3	2	4
T-MEC 210 Physical Metallurgy .....	3	3	4
T-MEC 213 Production Planning .....	3	3	4
T-MEC 201 Machine Processes .....	2	6	4
	<hr/>	<hr/>	<hr/>
	14	14	19

Fifth Quarter	C	L	CH
Social Science Elective .....	3	0	3
T-MEC 211 Physical Metallurgy .....	3	3	4
T-DFT 211 Mechanisms .....	3	2	4
T-ISC 202 Quality Control .....	3	2	4
Elective .....	4	0	4
	<hr/>	<hr/>	<hr/>
	16	7	19

“Manipulative laboratory” involves development of skills and job proficiency. Credit of one quarter hour for each three hours of laboratory.

C=Class Hrs. Per Week

L=Lab Hrs. Per Week

CH=Credit Hrs. Per Qtr.

**Sixth Quarter**

**C L CH**

Social Science Elective .....	3	0	3
T-ISC 203 Motion Study .....	3	2	4
T-MEC 235 Hydraulics and Pneumatics .....	3	3°	4
Elective .....	4	0	4
Elective .....	4	0	4
	<hr/>	<hr/>	<hr/>
	17	5	19

**Total 110**

**ELECTIVES**

Electives for the **Manufacturing Technology Curriculum** will be selected from the following courses. The school may determine which of these are to be offered in any given quarter of the program.

**TECHNICAL**

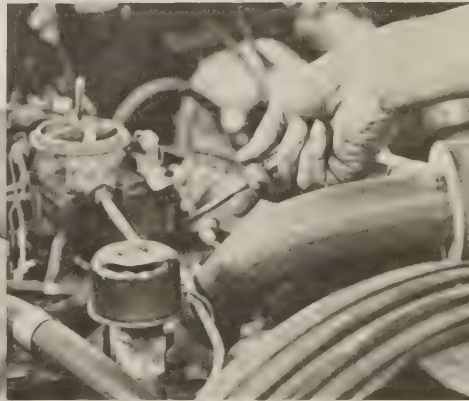
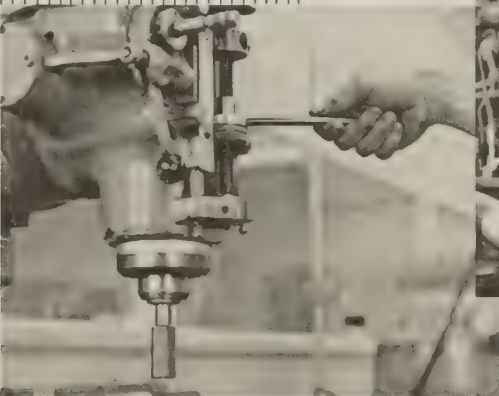
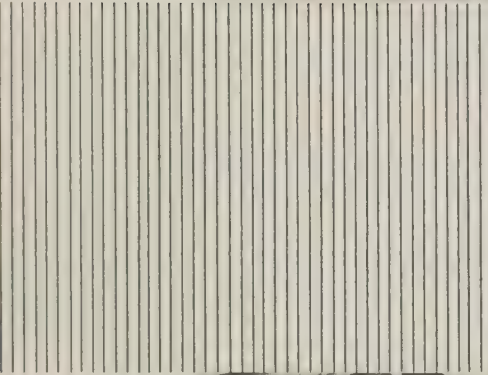
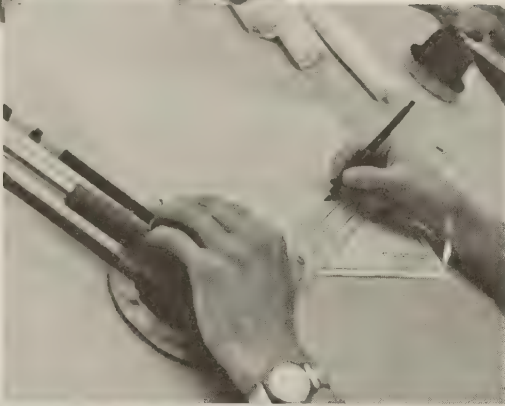
	<b>C</b>	<b>L</b>	<b>Cr</b>
T-DFT 212 Jig and Fixture Design .....	2	6	4
T-MEC 212 Practical Automation .....	3	2	4
T-MEC 214 Tool Engineering .....	3	0	3
T-ELN 201 Industrial Controls .....	3	2	4
T-ELC 201 Electrical Machinery .....	3	0	3
T-CHM 101 Chemistry .....	4	2	5
T-MEC 237 Control Systems .....	2	4	4
T-ISC 204 Value Analysis .....	3	0	3
T-ISC 201 Industrial Organization and Management .....	3	0	3
T-ISC 209 Plant Layout .....	3	2	4

**SOCIAL SCIENCE**

T-SSC 201 Social Science .....	3	0	3
T-SSC 202 Social Science .....	3	0	3
T-PSY 206 Applied Psychology .....	3	0	3
T-ECO 102 Economics .....	3	0	3
T-SSC 205 American Institutions .....	3	0	3
T-POL 201 United States Government .....	3	0	3



# DIPLOMA PROGRAMS





## DIPLOMA PROGRAMS

(one-year)

### ADMISSION REQUIREMENTS

The following are minimum admission requirements to the regular one-year preparatory curriculums and vocational programs:

#### Minimum Admission Requirements

A candidate for admission to the regular trade-vocational training programs must meet the following qualifications:

1. Must be at least 18 years of age and have the ability to enter into or make advancement in the area in which enrolled.
2. Must have satisfactorily completed a minimum of eight (8) units of accredited secondary school work. Those who have not successfully completed eight (8) units of such work will be required to take other standard and/or local institution tests.
3. Must demonstrate aptitude for vocational training as determined by standard and/or local institution tests to insure ability to meet job requirements in the desired trade.
4. May be required to have a personal interview with designated school representative.
5. Must be in acceptable physical and mental health to meet qualifications for a given occupation.

In addition to the above minimum admission requirements, more specific prerequisites are necessary in some programs.

It is suggested that students should have completed one unit of algebra.

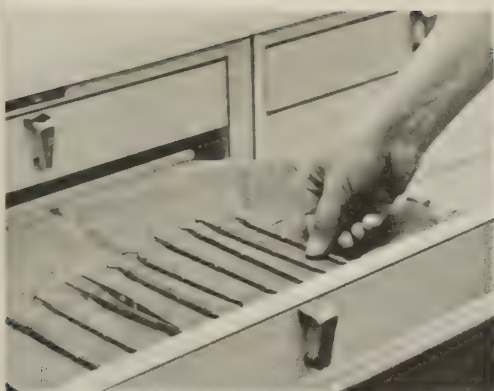
Facilities are available at the Institute for removal of academic deficiencies.





# HEALTH OCCUPATIONS





## DENTAL ASSISTING

### Purpose of Curriculum

Dental assisting is one of the fastest growing occupations for women today. The role of the dental assistant has evolved from that of receptionist only to that of a fully participating member of the dental team; primary emphasis is on chairside assisting, although she continues to perform numerous duties related to office management, patient relations, and laboratory procedures. The dental profession now recognizes the contribution the dental assistant can make to the extension of services and increased productivity of the dental office. Projected needs call for a fivefold expansion in numbers of graduates and continued improvement in the quality of training programs.

The specific objectives of the Dental Assisting Curriculum are to develop the following competencies:

1. Understanding of the business procedures of the dental office.
2. Understanding of principles and beginning skill in the procedures of chairside assisting, including effective patient relationships.
3. Understanding of principles and beginning skills in performance of selected laboratory procedures commonly carried out in the dental office.

### Job Description

The duties of the dental assistant vary somewhat, depending on the number of auxiliary workers employed. In some offices the assistant is responsible for all three areas described below; in others, she may be responsible for only one area.

In rendering chairside assistance to the dentist, the dental assistant is responsible for placing instruments for use, keeping the operating field clear during treatment, preparing restorative materials and dental cements,

passing materials and instruments during dental procedures, and care of the operatory after use. She may take X-rays of the teeth and apply fluorides under the direction of the dentist. In the laboratory of the dental office, she may make models of the teeth and mouth, cast inlays and crowns, process exposed X-ray films and mount finished X-rays. In acting as office manager and receptionist, she receives patients, arranges appointments, records treatments, keeps accounts, maintains inventories, and orders supplies.

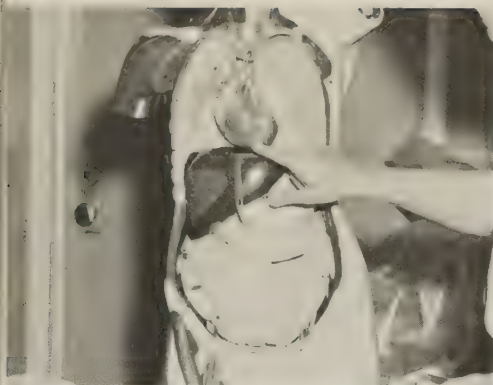
### SUGGESTED CURRICULUM BY QUARTERS

COURSE TITLE			
First Quarter			
	C	L	CH
DEN 1001 Introduction to Dental Assisting .....	2	0	2
DEN 1002 Dental Materials .....	2	9°	5
DEN 1003 Preclinical Sciences I .....	3	3°	4
ENG 1102 Communication Skills .....	3	0	3
PSY 1112 Personality Development .....	3	0	3
	<hr/>	<hr/>	<hr/>
	13	12	17
Second Quarter			
	C	L	CH
DEN 1004 Preclinical Sciences II .....	4	0	4
DEN 1005 Dental Accounting .....	3	2	4
DEN 1006 Clinical Procedures I .....	5	9°	8
BUS 1102 Typewriting .....	2	3°	3
	<hr/>	<hr/>	<hr/>
	14	14	19
Third Quarter			
	C	L	CH
DEN 1007 Clinical Procedures II .....	5	6°	7
DEN 1008 Dental Office Management .....	4	3°	5
DEN 1009 Dental Office Practice I .....	0	12°	4
ENG 1103 Report Writing .....	3	0	3
	<hr/>	<hr/>	<hr/>
	12	21	19
Fourth Quarter			
	C	L	CH
DEN 1010 Dental Office Practice II .....	0	24°	8
DEN 1011 Dental Assistant Seminar .....	1	0	1
PSY 1101 Human Relations .....	3	0	3
	<hr/>	<hr/>	<hr/>
	4	24	12
	<hr/>		
	Total	67	

\*“Manipulative laboratory” involves development of skills and job proficiency. Credit of one quarter hour for each three hours of laboratory.

C=Class Hrs. Per Week                      L=Lab Hrs. Per Week                      CH=Credit Hrs. Per Qtr.





The accelerated growth in North Carolina and rapid advancement in medical technology demands a large increase in the number of well-trained, capable personnel for health service positions.

The aim of this program is to make available the opportunity for the interested male and female to prepare themselves for participation in the care of patients of all ages, in various states of dependency, and with a variety of illness conditions.

Students are selected on the basis of interest in and aptitude for nursing, as determined by pre-entrance test, high school records, personal interviews, health reports, and character references.

### **Description of Program**

The Practical Nurse Education program is taught in a 4-quarter period of classroom instruction and supervised nursing practice.

Following a period of classroom instruction in fundamentals of nursing, and principles from the basic biological and social sciences, the student practices nursing skills under faculty supervision in the hospital areas. The student advances in her studies, and in the nursing care of patients of all ages through planned assignments in medical-surgical Nursing, care of the mother and newborn infant, and the care of the sick child.

Other learning opportunities are planned with the obstetrician and pediatrician for observations in offices and a public health clinic.

The graduate practical nurse is eligible to take, and must pass, the North Carolina Board of Nursing Licensing exam for practical nurses in order to practice in North Carolina.

The LPN is qualified and prepared to function in a variety of situations: hospitals, nursing homes, clinics, doctors' offices, private duty nursing,

and in public health programs. In all situations the LPN functions under the supervision of a registered nurse and/or a licensed physician.

## SUGGESTED CURRICULUM BY QUARTERS

### COURSE TITLE

First Quarter	C	L	CL	CH
PSY 1101 Human Relationship .....	3	0	0	3
PNE 1001 Personal and Community Health .....	2	0	0	2
PNE 1002 Basic Sciences .....	5	2	0	6
PNE 1003 Fundamentals of Practical Nursing .....	6	4	0	8
ENG 1102 Communicative Skills .....	3	0	0	3
PNE 1004 Clinical Experience I .....	0	0	3	1
	<hr/>	<hr/>	<hr/>	<hr/>
	19	6	3	23
Second Quarter	C	L	CL	CH
PNE 1105 Medical—Surgical Nursing I .....	4	0	0	4
PNE 1006 Maternity Nursing .....	4	0	0	4
PNE 1007 Pediatric Nursing .....	4	0	0	4
PNE 1008 Clinical Experience II .....	0	0	24	8
	<hr/>	<hr/>	<hr/>	<hr/>
	12	0	24	20
Third Quarter	C	L	CL	CH
PNE 1009 Medical-Surgical Nursing II .....	7	0	0	7
PNE 1010 Drugs and Drug Administration .....	3	2	0	4
PNE 1011 Clinical Experience III .....	0	0	24	8
	<hr/>	<hr/>	<hr/>	<hr/>
	10	2	24	19
Fourth Quarter	C	L	CL	CH
PNE 1012 Advanced Medical-Surgical Nursing III .....	7	0	0	8
PNE 1013 Mental Health .....	3	0	0	2
PNE 1014 Vocational Adjustment .....	2	0	0	2
PNE 1015 Clinical Experience IV .....	0	0	24	8
	<hr/>	<hr/>	<hr/>	<hr/>
	12	0	24	20
	Total			82

\*Seminar

C=Class Hrs. Per Week

L=Lab Hrs. Per Week

CL=Clinical Hrs. Per Week

CH=Credit Hrs. Per Quarter

# MECHANICAL OCCUPATIONS







## AIR CONDITIONING AND REFRIGERATION MECHANICS

### Purpose of Curriculum

In recent years the use of air conditioning and refrigeration equipment has increased tremendously. Practically all new building construction for business and commercial use have "all year" comfort systems. Many homes now have air conditioning and the trend is toward greater use of "all year" systems of cooling and heating. The food industry is requiring greater use of refrigeration systems in freezing, storage, and display of products. With this great upswing in the use of air conditioning and refrigeration equipment, a greater demand is made on trained personnel to install, operate, maintain and service this equipment.

This curriculum is designed to give the students practical knowledge that will enable them to become capable service men in the industry. The principle objective has been to outline the required technical and related instruction to enable them to understand the basic principles involved in the construction, operation, and maintenance of equipment. Job opportunities exist with commercial companies that specialize in air conditioning, automatic heating, sheet metal and commercial refrigeration installation and service. The service man is employable in areas of sales, maintenance, installation and in the growing fields of truck and trailer refrigeration.

### Job Description

The air conditioning and refrigeration mechanic installs, inspects, maintains, services and repairs domestic and commercial equipment. Connects motors, compressors, temperature controls, humidity controls, and circulating fans to control panels; Tests systems, observes pressure and vacuum gauges and adjusts controls to insure proper operation.

## SUGGESTED CURRICULUM BY QUARTERS

### COURSE TITLE

#### First Quarter

**C L CH**

AHR 1121 Principles of Refrigeration .....	3	12	7
MAT 1101 Fundamentals of Mathematics .....	5	0	5
ENG 1101 Reading Improvement .....	2	0	2
PHY 1101 Applied Science .....	3	2	4
DFT 1104 Blueprint Reading: Mechanical .....	0	3	1
	<hr/>	<hr/>	<hr/>
	13	17	19

#### Second Quarter

**C L CH**

AHR 1122 Domestic and Commercial Refrigeration .....	3	9	6
MAT 1102 Algebra .....	5	0	5
ENG 1102 Communication Skills .....	3	0	3
ELC 1102 Applied Electricity .....	2	13	3
DFT 116 Blueprint Reading: Air Conditioning .....	1	3	2
	<hr/>	<hr/>	<hr/>
	14	15	19

#### Third Quarter

**C L CH**

AHR 1123 Principles of Air Conditioning .....	3	12	7
AHR 1128 Automatic Controls .....	3	6	5
PSY 1101 Human Relations .....	3	0	3
WLD 1101 Basic Gas Welding .....	0	3	1
	<hr/>	<hr/>	<hr/>
	9	21	16

#### Fourth Quarter

**C L CH**

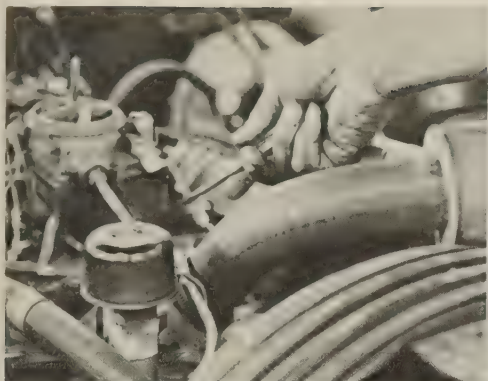
AHR 1124 Air Conditioning and Refrigeration Servicing .....	3	6	5
AHR 1126 All Year Comfort System .....	3	6	5
MEC 1120 Duct Construction and Maintenance .....	3	6	5
BUS 1103 Small Business Operations .....	3	0	3
	<hr/>	<hr/>	<hr/>
	12	18	18

"Manipulative laboratory" involves development of skills and job proficiency. Credit of one quarter hour for each three hours of laboratory.

C=Class Hrs. Per Week

L=Lab Hrs. Per Week

CH=Credit Hrs. Per Qtr.



## AUTOMOTIVE MECHANICS

### Purpose of Curriculum

This curriculum provides a training program for developing the basic knowledge and skills needed to inspect, diagnose, repair or adjust automotive vehicles. Manual skills are developed in practical shop work. Thorough understanding of the operating principles involved in the modern automobile comes in class assignments, discussion, and shop practice.

Complexity in automotive vehicles increases each year because of scientific discovery and new engineering. These changes are reflected not only in passenger vehicles, but also in trucks, buses and a variety of gasoline-powered equipment. This curriculum provides a basis for the student to compare and adapt to new techniques for servicing and repair as vehicles are changed year by year.

### Job Description

Automobile mechanics maintain and repair mechanical, electrical, and body parts of passenger cars, trucks, and buses. In some communities and rural areas they also may service tractors or marine engines and other gasoline-powered equipment. Mechanics inspect and test to determine the causes of faulty operation. They repair or replace defective parts to restore the vehicle or machine to proper operating condition. They use shop manuals and other technical publications.

Automotive mechanics in smaller shops usually are general mechanics qualified to perform a variety of repair jobs. A large number of automobile mechanics specialize in particular types of repair work. For example, some may specialize in repairing only power steering and power brakes, or automatic transmissions. Usually such specialists have an all-round knowledge of automotive repair and may occasionally be called upon to do other types of work.

## SUGGESTED CURRICULUM BY QUARTERS

### COURSE TITLE

#### First Quarter

**C L CH**

PME 1101 Internal Combustion Engines .....	3	12	7
MAT 1101 Fundamentals of Mathematics .....	5	0	5
ENG 1101 Reading Improvement .....	2	0	2
PHY 1101 Applied Science .....	3	2	4
	<hr/>	<hr/>	<hr/>
	13	14	18

#### Second Quarter

**C L CH**

PME 1102 Engine Electrical and Fuel Systems .....	5	12	9
ENG 1102 Communications Skills .....	3	0	3
DFT 1101 Schematics and Diagrams: Power Mechanics .....	0	3	1
PHY 1102 Applied Science .....	3	2	4
	<hr/>	<hr/>	<hr/>
	11	17	17

#### Third Quarter

**C L CH**

AUT 1123 Automotive Chassis and Suspension Systems .....	3	9	6
AUT 1121 Braking Systems .....	3	3	4
PSY 1101 Human Relations .....	3	0	3
AHR 1101 Automotive Air Conditioning .....	2	3	3
WLD 1101 Basic Gas Welding .....	0	3	1
	<hr/>	<hr/>	<hr/>
	11	18	17

#### Fourth Quarter

**C L CH**

AUT 1124 Automotive Power Train Systems .....	3	9	6
AUT 1125 Automotive Servicing .....	3	9	6
BUS 1103 Small Business Operations .....	3	0	3
	<hr/>	<hr/>	<hr/>
	9	18	15

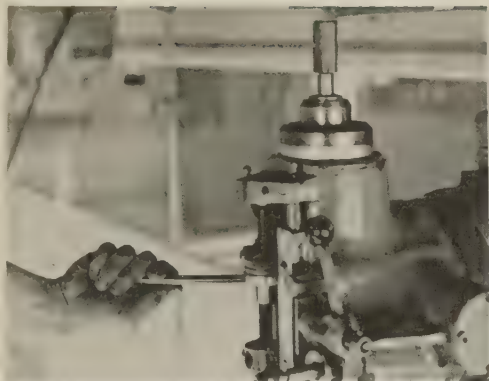
“Manipulative laboratory” involves development of skills and job proficiency. Credit of one quarter hour for each three hours of laboratory.

C=Class Hrs. Per Week

L=Lab Hrs. Per Week

CH=Credit Hrs. Per Qtr.





## MACHINIST TRADE

### Purpose of Curriculum

This curriculum was prepared to meet a definite need for training of machinists. Surveys recently completed in North Carolina show that many of the existing industries lack time and facilities for training enough machinists to meet present and planned needs. Expanding industries already located in our State and new industries under development invariably express the need for skilled craftsmen who have the background knowledge and potential to advance.

This guide is designed to give learners the opportunity to acquire basic skills and the related technical information necessary to gain employment and build a profitable career in the machine shop industry in the State. It is comprised of the joint views of committees responsible for its development.

### Job Description

The machinist is a skilled metal worker who shapes metal parts by using machine tools and hand tools. His training and experience enable him to plan and carry through all the operations needed in turning out a machined product and to switch readily from one kind of product to another. A machinist is able to select the proper tools and material required for each job and to plan the cutting and finishing operations in their proper order so that he can complete the finished work according to blueprint or written specifications. He makes standard shop computations relating to dimensions of work, tooling, feeds, and speeds of machining. He often uses precision measuring instruments such as micrometers and gages to measure the accuracy of his work to thousandths of an inch.

This skilled worker must be able to set up and operate most types of machine tools. The machinist also must know the composition of metals so that he can heat and quench cutting tools and parts to improve machinability. His wide knowledge enables him to turn a block of metal into an intricate, precise part.



## SUGGESTED CURRICULUM BY QUARTERS

### COURSE TITLE

#### First Quarter

**C L CH**

MEC 1101 Machine Shop Theory and Practice .....	3	12	7
MAT 1101 Fundamentals of Mathematics .....	5	0	5
DFT 1104 Blueprint Reading: Mechanical .....	0	3	1
ENG 1101 Reading Improvement .....	2	0	2
PHY 1101 Applied Science .....	3	2	4
	<hr/>	<hr/>	<hr/>
	13	17	19

#### Second Quarter

**C L CH**

MEC 1102 Machine Shop Theory and Practice .....	3	12	7
MAT 1103 Geometry .....	3	0	3
DFT 1105 Blueprint Reading: Mechanical .....	0	3	1
PHY 1102 Applied Science .....	3	2	4
ENG 1102 Communication Skills .....	3	0	3
	<hr/>	<hr/>	<hr/>
	12	17	18

#### Third Quarter

**C L CH**

MEC 1103 Machine Shop Theory and Practice .....	3	12	7
MEC 1115 Treatment of Ferrous Metals .....	2	3	3
DFT 1106 Blueprint Reading: Mechanical .....	0	3	1
MAT 1104 Trigonometry .....	3	0	3
PSY 1101 Human Relations .....	3	0	3
	<hr/>	<hr/>	<hr/>
	11	18	17

#### Fourth Quarter

**C L CH**

MEC 1104 Machine Shop Theory and Practice .....	3	12	7
MEC 1116 Treatment of Non-Ferrous Metals .....	2	3	3
WLD 1101 Basic Gas Welding .....	0	3	1
MAT 1123 Machinist Mathematics .....	3	0	3
BUS 1105 Industrial Organizations .....	3	0	3
	<hr/>	<hr/>	<hr/>
	11	18	17

“Manipulative laboratory” involves development of skills and job proficiency. Credit of one quarter hour for each three hours of laboratory.

C=Class Hrs. Per Week

L=Lab Hrs. Per Week

CH=Credit Hrs. Per Qtr.



## MECHANICAL DRAFTING

### Purpose of Curriculum

This curriculum is designed to prepare students to enter the field of mechanical drafting. The first two quarters contain courses basic to all fields of drafting. The third and fourth quarters contain specialization and related courses that prepare one to enter mechanical drafting occupations.

Each course is prepared to enable an individual to advance rapidly in drafting proficiency upon entering the field of work. Courses are arranged in sequence to develop drafting skills and proficiency in mathematics and science. The draftsman associates with many levels of personnel—administrative, architects, engineers, skilled workmen—and must be able to communicate effectively with them. Courses to develop knowledge and skills in communication, human relations, economics and industrial organization are provided to assist the student in developing understandings and confidence in his relations with other persons.

### Job Description

*Draftsman* prepares clear, complete, and accurate working plans and detail drawings, from rough or detailed sketches or notes for engineering or manufacturing purposes, according to the specified dimensions: makes final sketch of the proposed drawing, checking dimension of parts, materials to be used, the relation of one part to another, and the relation of the various parts to the whole structure. Makes any adjustments or changes necessary or desired. Inks in lines and letters on pencil drawings as required. Exercises manual skill in the manipulation of triangle, T-square, and other drafting tools. Lays tracing paper on drawing and traces drawing in pencil or ink. Makes charts for representation of statistical data. Makes finished designs from sketches. Utilizes knowledge of various machines, engineering practices, mathematics, building materials, and other physical sciences to complete the drawings.

*Mechanical draftsman* performs the general duties of a draftsman and also specializes in making rough drafting sketches of proposed mechanical devices, and then drawing necessary details. Prepares accurate scale drawings of parts or machines from specifications.

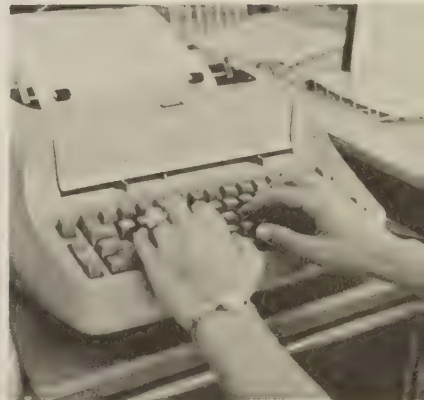
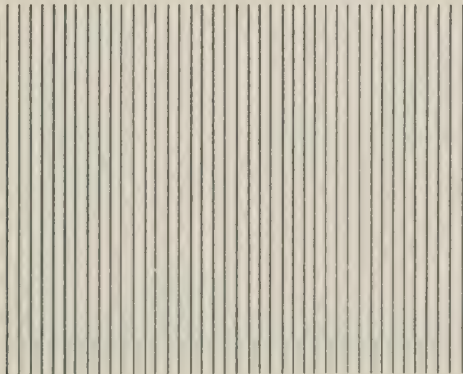
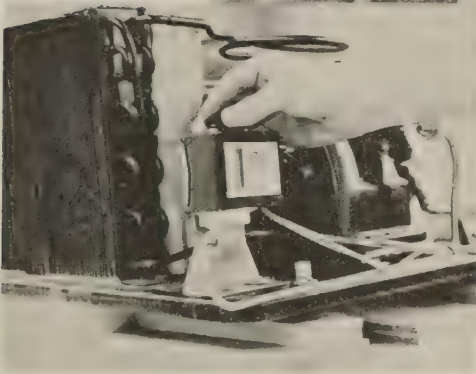
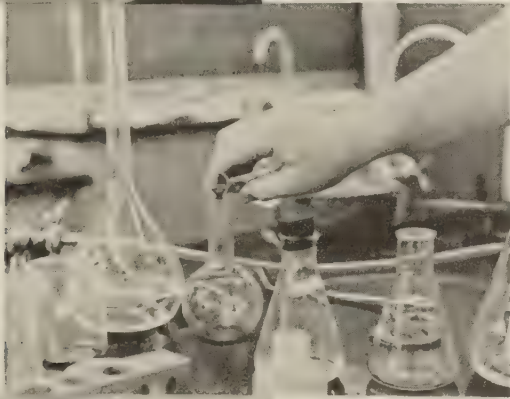
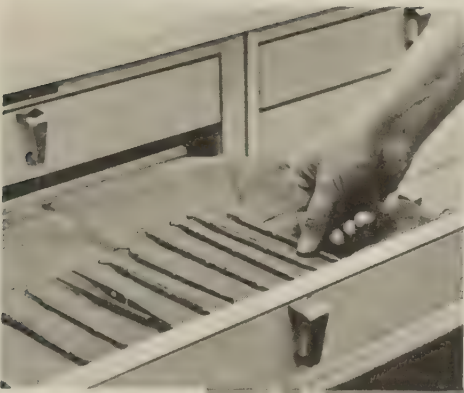
### SUGGESTED CURRICULUM BY QUARTERS

COURSE TITLE			
First Quarter			
	C	L	CH
DFT 1121 Drafting .....	3	12	7
MAT 1103 Geometry .....	3	0	3
ENG 1101 Reading Improvement .....	2	0	2
PHY 1101 Applied Science .....	3	2	4
	<hr/>	<hr/>	<hr/>
	11	14	16
Second Quarter			
	C	L	CH
DFT 1122 Drafting .....	3	6	5
DFT 1125 Descriptive Geometry .....	2	3	3
MAT 1102 Algebra .....	5	0	5
ENG 1102 Communication Skills .....	3	0	3
PHY 1102 Applied Science .....	3	2	4
	<hr/>	<hr/>	<hr/>
	16	11	20
Third Quarter			
	C	L	CH
DFT 1131 Mechanical Drafting .....	3	12	7
MAT 1104 Trigonometry .....	3	0	3
PSY 1101 Human Relations .....	3	0	3
MEC 1113 Shop Processes .....	2	3	3
MEC 1115 Treatment of Ferrous Metals .....	2	3	3
	<hr/>	<hr/>	<hr/>
	13	18	19
Fourth Quarter			
	C	L	CH
DFT 1132 Mechanical Drafting .....	3	12	7
MEC 1114 Shop Processes .....	2	3	3
MEC 1116 Treatment of Non-Ferrous Metals .....	2	3	3
BUS 1105 Industrial Organizations .....	3	0	3
	<hr/>	<hr/>	<hr/>
	10	18	16

“Manipulative laboratory” involves development of skills and job proficiency. Credit of one quarter hour for each three hours of laboratory.

C=Class Hrs. Per Week                      L=Lab Hrs. Per Week                      CH=Credit Hrs. Per Qtr.

# COURSES OF INSTRUCTION







## AIR CONDITIONING AND REFRIGERATION

<b>T-AHR 101 Fundamentals of Refrigeration I</b>	4	3°	5
--------------------------------------------------	---	----	---

Terminology, laws of refrigeration, absolute pressure and absolute temperature, energy conversion units; specific heat, latent heat, and sensible heat; measurement of heat in quantity and intensity; tone of refrigeration, pressure temperature relationships, transfer of heat by conduction, convection and radiation; elementary refrigeration, refrigeration cycle and refrigerant controls. Tools, materials and methods applicable to air conditioning, and refrigeration.  
Prerequisite: None.

<b>T-AHR 102 Fundamentals of Refrigeration II</b>	3	6°	5
---------------------------------------------------	---	----	---

Refrigerants and their application in commercial refrigeration; system components, accessories, installation procedures and techniques; diagnosing service problems of mechanical difficulties; methods of defrosting; and making sketches of designs for high, medium, and low temperature installation. Symbols for refrigeration and piping equipment will be used in making sketches.  
Prerequisites: T-AHR 101, T-PHY 101.

<b>T-AHR 103 Commercial Refrigeration Systems Design</b>	3	6	5
----------------------------------------------------------	---	---	---

Procedures of load calculating used in commercial refrigeration. Various types of installations are studied with emphasis on the product to be cooled, the desired temperatures to be maintained, and humidity conditions. Problems involving system balance and component capacity. Use of heat load charts, pipe sizing tables, manufactured data, and specification sheets.  
Prerequisite: T-AHR 102.

<b>T-AHR 201 Heating Principles</b>	3	4	5
-------------------------------------	---	---	---

Warm air systems, heat emitters, electric heating, forced hot water and steam heating systems including selection and sizing of equipment—registers, grills, furnaces, boilers, radiators, baseboards, piping, and ducts. Fuels and burners used in supplying heat for various types of heating systems—coal, oil, natural gas, manufactured gas, liquified petroleum gas, and electricity. Experiments in equipment selection, installation, adjusting, and servicing will be conducted. Heating layout and specifications for an existing structure or one in blueprint stage will be prepared.  
Prerequisites: T-PHY 101, T-DFT 102.

<b>T-AHR 202 Fuels and Burners</b>	2	3	3
------------------------------------	---	---	---

Advanced course in heating systems with emphasis on new types of fuels and burners. Demonstrations and experiments with mock-ups and sample systems of gas, fuel oil and electrical installations. Experiments in equipment selection, installation, and maintenance will be conducted.  
Prerequisite: T-AHR 201.

<b>T-AHR 203 Air-Conditioning Principles</b>	5	6	7
----------------------------------------------	---	---	---

An introduction to air distribution. Humidity, saturated and unsaturated mixtures; psychrometric charts and graphs; specific heat and air flow calculations, heat load

calculations, the state of mixture of two air streams, bypass factor and dehumidification.  
Prerequisite: T-AHR 103.

<b>T-AHR 209 Air-Conditioning System Design</b>	<b>5</b>	<b>6</b>	<b>7</b>
-------------------------------------------------	----------	----------	----------

Self-contained units, remote units, unitary systems and control systems. Chilled water units, air duct units, high velocity duct units. Air and/or water-cooled systems, centrifugal pressure systems, conventional systems, absorption systems, air-handling and filtering systems.

Prerequisites: T-AHR 203, T-AHR 201.

<b>T-AHR 210 Installation and Design Problems</b>	<b>2</b>	<b>6</b>	<b>4</b>
---------------------------------------------------	----------	----------	----------

This course will consist of making drawings from designs that emphasize commercial refrigeration and air-conditioning layouts. Information is gathered, calculations are made, schematic drawings are prepared, and specifications written for the specified installations.

Prerequisites: T-DFT 226, T-AHR 203.

<b>T-AHR 216 Circuits and Controls I</b>	<b>3</b>	<b>3</b>	<b>4</b>
------------------------------------------	----------	----------	----------

Electric, electronic and pneumatic controls as related to ventilation, refrigeration, and air-conditioning systems. Practice in layouts, including symbols and schematic diagrams. Laboratory work in installations of control systems. Test instruments and their use. System adjustments for proper operation.

Prerequisites: T-AHR 103, T-AHR 201, T-PHY 103.

<b>T-AHR 217 Circuits and Controls II</b>	<b>3</b>	<b>3</b>	<b>4</b>
-------------------------------------------	----------	----------	----------

Practice in layouts, selection, installation and trouble-shooting of conventional refrigeration and air conditioning control systems. Class and laboratory work includes control of residential and commercial heating and air conditioning systems. Control problems of mechanical refrigeration, zone and central-fan systems. Unit heaters and ventilators, peripheral air conditioning units and radiant-panel heating are studied.

Prerequisites: T-AHR 103, T-AHR 201, T-PHY 103, T-AHR 216.

<b>T-AHR 227 Estimating and Contracts</b>	<b>3</b>	<b>6</b>	<b>5</b>
-------------------------------------------	----------	----------	----------

Cost estimation, plans and specifications, equipment take-off, materials take-off, labor take-off, sub-contractors' estimates, overhead cost, and bid and contract procedures.

Prerequisites: T-AHR 203, T-DFT 226.

<b>T-AHR 230 Seminar and Research</b>	<b>1</b>	<b>4</b>	<b>3</b>
---------------------------------------	----------	----------	----------

Successful completion of the Air-Conditioning and Refrigeration Technology curriculum is climaxed by the student conducting a research project and writing a report on this project. The student, through consultation with the instructors, will choose an individual project that will, when feasible, involve an actual installation. Frequent conferences with instructor will guide the student in the progress of research and in the preparation of the report.

Prerequisites: T-AHR 201, T-AHR 216, T-AHR 203.

<b>AHR 1101 Automotive Air Conditioning</b>	<b>2</b>	<b>3</b>	<b>3</b>
---------------------------------------------	----------	----------	----------

General introduction to the principles of refrigeration; study of the assembly of the

components and connections necessary in the mechanisms, the methods of operation, and control; proper handling of refrigerants in charging the system.

Prerequisite: PHY 1102.

AHR 1121 Principles of Refrigeration	3	12	7
--------------------------------------	---	----	---

An introduction to the principles of refrigeration, terminology, the use and care of tools and equipment, and the identification and the function of the component parts of a system. Other topics to be included will be the basic laws of refrigeration; characteristics and comparison of the various refrigerants; the use and construction of valves, fittings, and basic controls. Practical work includes tube bending, flaring and soldering. Standard procedures and safety measures are stressed in the use of special refrigeration service equipment and the handling of refrigerants.

Prerequisite: None.

AHR 1122 Domestic and Commercial Refrigeration	3	9	6
------------------------------------------------	---	---	---

Domestic refrigeration servicing of conventional, hermetic, and absorption systems. Cabinet care, controls, and system maintenance in domestic refrigerators, freezers, and window air conditioning units is stressed. Commercial refrigeration servicing of display cabinets, walk-in cooler and freezer units, and mobile refrigeration systems is studied. The use of manufacturers' catalogs in sizing and matching system components and a study of controls, refrigerants, servicing methods is made. The American Standard Safety Code for Refrigeration is studied and its principles practiced.

Prerequisite: AHR 1121.

<b>AHR 1123 Principles of Air Conditioning</b>	3	12	7
------------------------------------------------	---	----	---

Work includes the selection of various heating, cooling and ventilating systems, investigation and control of factors affecting air cleaning, movement, temperature, and humidity. Use is made of psychrometric charts in determining needs to produce optimum temperature and humidity control. Commercial air conditioning equipment is assembled and tested. Practical sizing and balancing of ductwork is performed as needed.

Prerequisite: AHR 1122.

AHR 1124 Air Conditioning and Refrigeration Servicing	3	6	5
-------------------------------------------------------	---	---	---

Emphasis is placed on the installation, maintenance, and servicing of equipment used in the cleaning, changing, humidification and temperature control of air in an air conditioned space. Installation of various ducts and lines needed to connect various components is made. Shop work involves burner operation, controls, testing and adjusting of air conditioning and refrigeration equipment, and location and correction of equipment failure.

Prerequisite: AHR 1123.

AHR 1126 All Year Comfort Systems	3	6	5
-----------------------------------	---	---	---

Auxiliary equipment used in conjunction with refrigeration systems to provide both heating and cooling for "all year" comfort will be studied and set up in the laboratory. Included will be oil fired systems, gas fired systems, water circulating systems, and electric-resistance systems. Installation of heat pumps will be studied along with servicing techniques. Reversing valves, special types of thermostatic expansion valves,

systems of de-icing coils, and electric wiring and controls are included in the study.  
Prerequisites: AHR 1123, AHR 1128.

<b>AHR 1128 Automatic Controls</b>	3	6	5
------------------------------------	---	---	---

Types of automatic controls and their function in air conditioning systems. Included in the course will be electric and pneumatic controls for domestic and commercial cooling and heating; zone controls, unit heater and ventilator controls, commercial fan systems controls, commercial refrigeration controls, and radiant panel controls.  
Prerequisites: ELC 1102, AHR 1122.

**ART (ART)**

<b>T-ART 105 History of Art</b>	3	0	3
---------------------------------	---	---	---

A study of the origins and development of art forms from the beginning through contemporary. Lecture discussion documented with paintings, sculpture, reproductions and films.  
Prerequisite: None.

<b>T-ART 106S Art History</b>	4	0	4
-------------------------------	---	---	---

A survey and analysis of major trends in architecture, painting, and sculpture in Western civilization. Pre-historic, Egyptian, ancient Near East, Aegean, Greek, Etruscan, Roman, early Christian, Byzantine, Islamic, early medieval, Romanesque, and Gothic art.

<b>T-ART 107S Art History</b>	4	0	4
-------------------------------	---	---	---

A continuation of T-ART 106S. Renaissance, Mannerist, Baroque, Neo-classic, Romantic, Realist, Impressionist, Post-impressionist, Expressionist, cubist, non-objective art, and twentieth century art are covered.

**AUTOMOTIVE (AUT)**

<b>AUT 1121 Braking Systems</b>	3	3	4
---------------------------------	---	---	---

A complete study of various braking systems employed on automobiles and lightweight truck. Emphasis is placed on how they operate, proper adjustment, and repair.  
Prerequisite: PHY 1102.

<b>AUT 1123 Automatic Chassis and Suspension Systems</b>	3	9	6
----------------------------------------------------------	---	---	---

Principles and functions of the components of automotive chassis. Practical job instruction in adjusting and repairing of suspension, and steering systems. Units to be studied will be shock absorbers, springs, steering systems, steering linkage, and front end and alignment.  
Prerequisite: PME 1102.

<b>AUT 1124 Automotive Power Train Systems</b>	3	9	6
------------------------------------------------	---	---	---

Principles and functions of automotive power train systems: clutches, transmission



gears, torque converters, drive shaft assemblies, rear axles and differentials. Identification of troubles, servicing, and repair.  
Prerequisites: PHY 1102, AUT 1123.

<b>AUT 1125 Automotive Servicing</b>	3	9	6
--------------------------------------	---	---	---

Emphasis is on the shop procedures necessary in determining the nature of troubles developed in the various component systems of the automobile. Troubleshooting of automotive systems, providing a full range of experiences in testing, adjusting, repairing and replacing.  
Prerequisites: AUT 1123, AUT 1121, AHR 1101.

**BUSINESS ADMINISTRATION (BUS)**

<b>T-BUS 101 Introduction to Business</b>	5	0	5
-------------------------------------------	---	---	---

A survey of the business world with particular attention devoted to the structure of the various types of business organization, methods of financing, internal organization, and management.  
Prerequisite: None.

<b>T-BUS 102 Typewriting</b>	2	3	3
------------------------------	---	---	---

Introduction to the touch typewriting system with emphasis on correct techniques, mastery of the keyboard, simple business correspondence, tabulation, and manuscripts.  
Prerequisite: None.

<b>T-BUS 103 Typewriting</b>	2	3	3
------------------------------	---	---	---

Instruction emphasizes the development of speed and accuracy with further mastery of correct typewriting techniques. These skills and techniques are applied in tabulation, manuscript, correspondence, and business forms.  
Prerequisite: T-BUS 102 or the equivalent. Speed requirement, 30 words per minute for five minutes.

<b>T-BUS 104 Typewriting</b>	2	3	3
------------------------------	---	---	---

Emphasis on production typing problems and speed building. Attention to the development of the student's ability to function as an expert typist, producing mailable copies. The production units are tabulation, manuscript, correspondence, and business forms.  
Prerequisite: T-BUS 103 or the equivalent. Speed requirement, 40 words per minute for five minutes.

<b>T-BUS 105S Advanced Typewriting</b>	2	3	3
----------------------------------------	---	---	---

A course to train the student who possesses basic skills to produce with efficiency typewritten work that would be acceptable in the most exacting business offices. The student learns to think independently regarding style and method.  
Prerequisite: Permission of Department Head.

<b>T-BUS 106 Shorthand</b>	3	2	4
----------------------------	---	---	---

A beginning course in the theory and practice of reading and writing shorthand.



Emphasis on phonetics, penmanship, word families, brief forms, and phrases.  
Prerequisite: None.

<b>T-BUS 107 Shorthand</b>	3	2	4
----------------------------	---	---	---

Continued study of theory with greater emphasis on dictation and elementary transcription.

Prerequisite: T-BUS 106 or the equivalent.

<b>T-BUS 108 Shorthand</b>	3	2	4
----------------------------	---	---	---

Theory and speed building. Introduction to office style dictation. Emphasis on development of speed in dictation and accuracy in transcription.

Prerequisite: T-BUS 107.

<b>T-BUS 110 Office Machines</b>	2	2	3
----------------------------------	---	---	---

A general survey of the business and office machines. Students will receive training in techniques, processes, operation and application of the ten-key adding machines, full keyboard adding machines, and calculator.

Prerequisite: None.

<b>T-BUS 112 Filing</b>	3	0	3
-------------------------	---	---	---

Fundamentals of indexing and filing, combining theory and practice by the use of miniature letters, filing boxes and guides. Alphabetic, Triple Check, Automatic, Geographic, Subject, Soundex, and Dewey Decimal filing.

Prerequisite: None.

<b>T-BUS 115 Business Law</b>	3	0	3
-------------------------------	---	---	---

A general course designed to acquaint the student with certain fundamentals and principles of business law, including contracts, negotiable instruments, and agencies.

Prerequisite: None.

<b>T-BUS 116 Business Law</b>	3	0	3
-------------------------------	---	---	---

Includes the study of laws pertaining to bailments, sales, risk-bearing, partnership-corporation, mortgages, and property rights.

Prerequisite: T-BUS 115.

<b>T-BUS 120 Accounting</b>	5	2	6
-----------------------------	---	---	---

Principles, techniques and tools of accounting, for understanding of the mechanics of accounting. Collecting, summarizing, analyzing, and reporting information about service and mercantile enterprises, to include practical application of the principles learned.

Prerequisite: T-MAT 110.

<b>T-BUS 121 Accounting</b>	5	2	6
-----------------------------	---	---	---

Partnership and corporation accounting including a study of payrolls, federal and state taxes. Emphasis is placed on the recording, summarizing and interpreting data for management control rather than on bookkeeping skills. Accounting services are shown as they contribute to the recognition and solution of management problems.

Prerequisite: T-BUS 120.

<b>T-BUS 122S Accounting</b>	<b>5</b>	<b>0</b>	<b>5</b>
------------------------------	----------	----------	----------

Corporation accounting including study of issuing stock, subscriptions to stock and redemption of stock. Long-term obligations and investments of corporations. Accounting for departments and branches. Study of manufacturing operations and process cost system.

Prerequisites: T-BUS 121

<b>T-BUS 123 Business Finance</b>	<b>3</b>	<b>0</b>	<b>3</b>
-----------------------------------	----------	----------	----------

Financing of business units, as individuals, partnerships, corporations, and trusts. A detailed study is made of short-term, long-term, and consumer financing.

Prerequisite: T-ECO 104

<b>T-BUS 124 Business Finance</b>	<b>3</b>	<b>0</b>	<b>3</b>
-----------------------------------	----------	----------	----------

Financing, federal, state, and local government and the ensuing effects upon the economy. Factors affecting supply of funds, monetary and credit policies.

Prerequisite: T-BUS 123.

<b>T-BUS 182M Anatomy</b>	<b>3</b>	<b>0</b>	<b>3</b>
---------------------------	----------	----------	----------

A basic study of the general plan of the body and the nine systems, including common diseases and health deviations.

Prerequisite: none

<b>T-BUS 183M Terminology and Vocabulary</b>	<b>3</b>	<b>0</b>	<b>3</b>
----------------------------------------------	----------	----------	----------

To develop an understanding of the terminology and vocabulary appropriate to the course of study, as it is used in business, technical, and professional offices.

Prerequisite: T-BUS 107.

<b>T-BUS 183T Terminology and Vocabulary</b>	<b>3</b>	<b>0</b>	<b>3</b>
----------------------------------------------	----------	----------	----------

To develop an understanding of the terminology and vocabulary appropriate to the course of study, as it is used in business, technical, and professional offices.

Prerequisite: T-BUS 107.

<b>T-BUS 205 Advanced Typewriting</b>	<b>2</b>	<b>3</b>	<b>3</b>
---------------------------------------	----------	----------	----------

Emphasis is placed on the development of individual production rates. The student learns the techniques needed in planning and in typing projects that closely approximate the work appropriate to the field of study. These projects include review of letter forms, methods of duplication, statistical tabulation, and the typing of reports, manuscripts and legal documents.

Prerequisite: T-BUS 104. Speed requirement, 50 words per minute for five minutes.

<b>T-BUS 206M Dictation and Transcription</b>	<b>3</b>	<b>2</b>	<b>4</b>
-----------------------------------------------	----------	----------	----------

Develops the skill of taking dictation and of transcribing at the typewriter materials appropriate to the course of study, which includes a review of the theory and the dictation of familiar and unfamiliar material at varying rates of speed. Minimum dictation rate of 100 words per minute required for five minutes on new material.

Prerequisite: T-BUS 108.

<b>T-BUS 206T Dictation and Transcription</b>	<b>3</b>	<b>2</b>	<b>4</b>
-----------------------------------------------	----------	----------	----------

Develops the skill of taking dictation and of transcribing at the typewriter materials appropriate to the course of study, which includes a review of the theory and the dictation of familiar and unfamiliar material at varying rates of speed. Minimum dictation rate of 100 words per minute required for five minutes on new material.  
Prerequisite: T-BUS 108.

<b>T-BUS 207M Dictation and Transcription</b>	<b>3</b>	<b>2</b>	<b>4</b>
-----------------------------------------------	----------	----------	----------

Covering materials appropriate to the course of study, the student develops the accuracy, speed, and vocabulary that will enable her to meet the stenographic requirements of business and professional offices. Minimum dictation rate of 110 words per minute required for five minutes on new material.  
Prerequisite: T-BUS 206M.

<b>T-BUS 207T Dictation and Transcription</b>	<b>3</b>	<b>2</b>	<b>4</b>
-----------------------------------------------	----------	----------	----------

Covering materials appropriate to the course of study, the student develops the accuracy, speed, and vocabulary that will enable her to meet the stenographic requirements of business and professional offices. Minimum dictation rate of 110 words per minute required for five minutes on new material.  
Prerequisite: T-BUS 206.

<b>T-BUS 208M Dictation and Transcription</b>	<b>3</b>	<b>2</b>	<b>4</b>
-----------------------------------------------	----------	----------	----------

Principally a speed building course, covering materials appropriate to the course of study, with emphasis on speed as well as accuracy. Minimum dictation rate of 120 words per minute required for five minutes on new material.  
Prerequisite: T-BUS 207.

<b>T-BUS 208T Dictation and Transcription</b>	<b>3</b>	<b>2</b>	<b>4</b>
-----------------------------------------------	----------	----------	----------

Principally a speed building course, covering materials appropriate to the course of study, with emphasis on speed as well as accuracy. Minimum dictation rate of 120 words per minute required for five minutes on new material.  
Prerequisite: T-BUS 207.

<b>T-BUS 211 Office Machines</b>	<b>2</b>	<b>2</b>	<b>3</b>
----------------------------------	----------	----------	----------

Instructions in the operation of the bookkeeping-accounting machines, duplication equipment, and the dictating and transcribing machines.  
Prerequisite: T-BUS 110.

<b>T-BUS 214 Secretarial Procedures</b>	<b>3</b>	<b>2</b>	<b>4</b>
-----------------------------------------	----------	----------	----------

Designed to acquaint the student with the responsibilities encountered by a secretary during the work day. These include the following: receptionist duties, handling the mail, telephone techniques, travel information, telegrams, office records, purchasing of supplies, office organization, and insurance claims.  
Prerequisite: None.

<b>T-BUS 215M Office Application</b>	<b>6</b>	<b>0</b>	<b>6</b>
--------------------------------------	----------	----------	----------

During the sixth quarter only, students are assigned to work in a business, technical,

or professional office for six hours per week. The objective is to provide actual work experience for secretarial students and an opportunity for the practical application of the skills and knowledge previously learned, according to the course of study.  
Prerequisites: T-BUS 214, T-BUS 205, T-BUS 208, T-BUS 211.

<b>T-BUS 215T Office Application</b>	6	0	6
--------------------------------------	---	---	---

During the sixth quarter only, students are assigned to work in a business, technical, or professional office for six hours per week. The objective is to provide actual work experience for secretarial students and an opportunity for the practical application of the skills and knowledge previously learned, according to the course of study.  
Prerequisites: T-BUS 214, T-BUS 205, T-BUS 208, T-BUS 211.

<b>T-BUS 217 Business Law</b>	3	0	3
-------------------------------	---	---	---

A study of the powers, policies, methods, and procedures used by the various federal, state and local administrative agencies in promoting and regulating business enterprises. It includes a consideration of the constitutional and statutory limitations on these bodies and judicial review of administrative action.  
Prerequisite: T-BUS 116.

<b>T-BUS 219 Credit Procedures and Problems</b>	3	0	3
-------------------------------------------------	---	---	---

Principles and practices in the extension of credit; collection procedures; laws pertaining to credit extension and collection are included.  
Prerequisite: T-BUS 120.

<b>T-BUS 225 Cost Accounting</b>	3	2	4
----------------------------------	---	---	---

Nature and purposes of cost accounting; accounting for direct labor, materials, and factory burden; job cost, and standard cost principles and procedures; selling and distribution cost; budgets, and executive use of cost figures.  
Prerequisite: T-BUS 121.

<b>BUS 226S Payroll Records and Accounting</b>	3	0	3
------------------------------------------------	---	---	---

A study in the preparation of the payroll which includes: (1) Figuring basic wages, (2) Deducting for taxes (FICA, FUTA, and Federal Income Taxes), and (3) Making necessary journal entries, as well as other problems encountered in preparing the payroll.  
Prerequisite: BUS 121

<b>T-BUS 229 Taxes</b>	3	2	4
------------------------	---	---	---

Application of federal and state taxes to various businesses and business conditions. A study of the following taxes: income, payroll, intangible, capital gain, sales and use, excise, and inheritance.  
Prerequisite: T-BUS 121.

<b>T-BUS 232 Sales Development</b>	3	0	3
------------------------------------	---	---	---

A study of retail, wholesale and specialty selling. Emphasis is placed upon mastering and applying the fundamentals of selling. Preparation for and execution of sales demonstrations required.  
Prerequisite: None.



<b>T-BUS 233 Personnel Management</b>	<b>3</b>	<b>0</b>	<b>3</b>
---------------------------------------	----------	----------	----------

Principles of organization and management of personnel, procurement, placement, training, performance checking, supervision, remuneration, labor relations, fringe benefits and security.  
Prerequisite: None.

<b>T-BUS 235 Business Management</b>	<b>3</b>	<b>0</b>	<b>3</b>
--------------------------------------	----------	----------	----------

Principles of business management including overview of major functions of management, such as planning, staffing, controlling, directing, and financing. Clarification of the decision-making function versus the operating function. Role of management in business—qualifications and requirements.  
Prerequisite: None.

<b>T-BUS 237 Wholesaling</b>	<b>3</b>	<b>0</b>	<b>3</b>
------------------------------	----------	----------	----------

The development of wholesaling; present day trends in the United States. A study of the functions of wholesaling.  
Prerequisite: None.

<b>T-BUS 239 Marketing</b>	<b>5</b>	<b>0</b>	<b>5</b>
----------------------------	----------	----------	----------

A general survey of the field of marketing, with a detailed study of the functions, policies, and institutions involved in the marketing process.  
Prerequisite: None.

<b>T-BUS 243 Advertising</b>	<b>3</b>	<b>2</b>	<b>4</b>
------------------------------	----------	----------	----------

The role of advertising in a free economy and its place in the media of mass communications. A study of advertising appeals; product and market research; selection of media; means of testing effectiveness of advertising. Theory and practice of writing advertising copy for various media.  
Prerequisite: None.

<b>T-BUS 245 Retailing</b>	<b>3</b>	<b>0</b>	<b>3</b>
----------------------------	----------	----------	----------

A study of the role of retailing in the economy including development of present retail structure, functions performed, principles governing effective operation and managerial problems resulting from current economics and social trends.  
Prerequisite: None.

<b>T-BUS 247 Business Insurance</b>	<b>3</b>	<b>0</b>	<b>3</b>
-------------------------------------	----------	----------	----------

A presentation of the basic principles of risk insurance and their application. A survey of the various types of insurance is included.  
Prerequisite: None.

<b>T-BUS 255 Interpreting Accounting Records</b>	<b>3</b>	<b>0</b>	<b>3</b>
--------------------------------------------------	----------	----------	----------

Designed to aid the student in developing a "use understanding" of accounting records, reports and financial statements. Interpretation, analysis, and utilization of accounting statements.  
Prerequisite: T-BUS 121.



<b>T-BUS 266 Budget and Record Keeping</b>	3	0	3
--------------------------------------------	---	---	---

The basic principles, methods, and procedures for preparation and operation of budgets. Special attention is given to the involvement of individual departments and the role they play. Emphasis on the necessity for accurate record keeping in order to evaluate the effectiveness of budget planning.

Prerequisite: T-BUS 121.

<b>T-BUS 271 Office Management</b>	3	0	3
------------------------------------	---	---	---

Presents the fundamental principles of office management. Emphasis on the role of office management including its functions, office automation, planning, controlling, organizing and actuating office problems.

Prerequisite: None.

<b>T-BUS 272 Principles of Supervision</b>	3	0	3
--------------------------------------------	---	---	---

Introduces the basic responsibilities and duties of the supervisor and his relationship to superiors, subordinates, and associates. Emphasis on securing an effective work force and the role of the supervisor. Methods of supervision are stressed.

Prerequisite: None.

<b>T-BUS 284M Terminology and Vocabulary</b>	3	0	3
----------------------------------------------	---	---	---

Greater emphasis on an understanding of the terminology and vocabulary appropriate to the course of study, as it is used in business, technical, and professional offices.

Prerequisite: T-BUS 183M.

<b>T-BUS 300S Current Trends in Business</b>	2	4	4
----------------------------------------------	---	---	---

Designed to aid the student to become more aware of current trends in the business world through reading, reporting, and informal discussions.

Prerequisite: Advance standing in Business Administration

<b>BUS 1102 Typewriting</b>	2	3	3
-----------------------------	---	---	---

A beginning course in touch typewriting, with emphasis on correct techniques, mastery of the keyboard, simple business correspondence, and tabulation.

Prerequisite: None.

<b>BUS 1103 Small Business Operations</b>	3	0	3
-------------------------------------------	---	---	---

An introduction to the business world, problems of small business operation, basic business law, business forms and records, financial problems, ordering and inventorying, layout of equipment and offices, methods of improving business, and employer-employee relations.

Prerequisite: None.

<b>BUS 1105 Industrial Organizations</b>	3	0	3
------------------------------------------	---	---	---

Methods, techniques, and practices of modern management in planning, organizing and controlling operations of a manufacturing concern. Introduction to the competitive system and the factors constituting product cost.

Prerequisite: None.

## CHEMISTRY (CHM)

<b>T-CHM 101 Chemistry</b>	4	2	5
----------------------------	---	---	---

Study of the physical and chemical properties of substances, chemical changes; elements, compounds, gases, chemical combinations; weights and measurements; theory of metals; acids, bases, salts, solvents, solutions, and emulsions. In addition, study of carbohydrates; electrochemistry, electrolytes, and electrolysis in their application of chemistry to industry.

Prerequisite: T-MAT 101.

<b>T-CHM 102 Chemistry</b>	4	2	5
----------------------------	---	---	---

General course in inorganic chemistry. Properties of acids, salts, bases, and solutions. Chemical and physical properties of selected inorganic elements are studied in detail. Laboratory work will consist of various inorganic tests and experiments.

Prerequisite: T-CHM 101.

<b>T-CHM 111 General Chemistry</b>	4	3*	5
------------------------------------	---	----	---

An introductory chemistry course involving chemical terminology, atomic structure, properties of some elements, and the function of the periodic table. Properties of compounds and mixtures are studied as are types of chemical reactions. Laboratory work consists of various inorganic reactions and preparations.

Prerequisite: None.

<b>T-CHM 112 General Chemistry</b>	4	3	5
------------------------------------	---	---	---

A study of the properties of elements not covered in T-CHM 101 and a study of greater depth of the combining properties of the elements including equivalent weights. Laboratory work includes chemical reactions and an investigation of properties of solutions.

Prerequisite: T-CHM 111.

<b>T-CHM 113S General Chemistry III</b>	4	3	5
-----------------------------------------	---	---	---

A continuation of T-CHM 112. The different families of elements are studied in detail, with emphasis on their sources, refining processes and chemical properties. Laboratory work will emphasize the properties of the different families of elements.

Prerequisite T-CHM 112.

<b>T-CHM 121 Quantitative Chemical Analysis</b>	3	6	5
-------------------------------------------------	---	---	---

Emphasis is placed on developing laboratory techniques employed in the volumetric analysis of acids and bases. The students will become thoroughly familiar with the principles and procedures of neutralization titration. Classroom work will emphasize the stoichiometric calculations involved in interpreting the results of analysis. Laboratory work will consist of percentage analysis of selected substances.

Prerequisite: T-CHM 112.

<b>T-CHM 222 Quantitative Chemical Analysis</b>	2	9	5
-------------------------------------------------	---	---	---

The more complex types of quantitative analysis. Special emphasis on the theory of oxidation-reduction and gravimetric analysis. Instrumental analysis is introduced and

use of modern analytical devices is stressed. The student will become familiar with the principles of redox reactions, ionization constants and pH of solutions. Stress is placed on the stoichiometric calculations of quantitative chemical analysis. Classroom work complements quantitative determinations in the laboratory.  
Prerequisite: T-CHM 121.

<b>T-CHM 227 Physical Chemistry</b>	3	2	4
-------------------------------------	---	---	---

Atomic theory, states of matter, chemical thermodynamics, molecular properties of solutions, equilibria, phase rule, electrochemistry, kinetics, surface chemistry, and photochemistry constitute major areas of study.  
Prerequisite: T-CHM 121.

<b>T-CHM 231 Organic Chemistry</b>	3	6	5
------------------------------------	---	---	---

Nomenclature, structure, preparation, properties, and reactions of aliphatic organic compounds. Laboratory work emphasizes techniques.  
Prerequisite: T-CHM 222.

<b>T-CHM 232 Organic Chemistry</b>	3	6	5
------------------------------------	---	---	---

The nomenclature, structure, preparation, properties, and reactions of aromatic organic compounds. Laboratory work emphasizes techniques and involves preparation and analysis of selected organic compounds.  
Prerequisites: T-CHM 231, T-CHM 227.

<b>T-CHM 233S Organic Chemistry III</b>	3	6	5
-----------------------------------------	---	---	---

A continuation of T-CHM 232. Polymers and other macro molecules will be studied in detail with some emphasis on synthetic textile fibers. Laboratory work will be centered around Polymers.  
Prerequisite T-CHM 232.

<b>T-CHM 241 Industrial Chemical Analysis</b>	3	9	6
-----------------------------------------------	---	---	---

An industrial laboratory situation is simulated. Principles and techniques learned in previous quarters are utilized in solution of problems common to local industry. It will be the responsibility of the instructor to determine and submit in outline form a program of suitable scope and sequence of topics which he will work out from consultation with his local advisory committee, representing the industry. This program must be approved by the administration and accepted by the appropriate State-level authority.  
Prerequisites: T-CHM 222, T-CHM 227.

<b>T-CHM 242 Industrial Chemical Analysis</b>	3	12	7
-----------------------------------------------	---	----	---

An industrial laboratory situation is maintained and the emphasis on instrumentation is expanded. Problems of industrial quality control. Plant visitations.  
Prerequisite: T-CHM 241.

<b>T-CHM 250S Qualitative Inorganic Analysis</b>	2	4	4
--------------------------------------------------	---	---	---

General principles involved in separation and identification of the more common cation and anions. Laboratory practice in identifying the ions in a variety of unknowns.  
Prerequisites: T-CHM 111 and T-CHM 112.

## COMMERCIAL ART (CAT)

<b>T-CAT 101 Advertising Principles</b>	3	0	3
-----------------------------------------	---	---	---

A comprehensive survey of the history and development of advertising including a discussion of its economic and social values. An introduction to advertising media and current publications in the field.

Prerequisite: None.

<b>T-CAT 105 Life Study</b>	2	3	3
-----------------------------	---	---	---

A study of the body structure with emphasis on the skeletal and muscular systems, movement and the aging process. Graphical interpretation and response to live models with emphasis on proportioning, masses and movement.

Prerequisite: None.

<b>T-CAT 106 Life Study</b>	0	6	2
-----------------------------	---	---	---

Graphical interpretation and response to the live model covering topics such as proportioning, the aging process, character, expression and draping the model. This course will deal with building of the figure and such ingredients.

<b>T-CAT 110 Industrial Illustration</b>	2	6	4
------------------------------------------	---	---	---

A comprehensive approach to the tools, equipment, materials and utilization of the illustration. Laboratory exercises and problems covering such topics as retouching photographs, product illustrations, production illustrations, renderings, preparation of visual charts, graphs and composites.

Prerequisite: T-DFT 102.

<b>T-CAT 116 Photography</b>	2	6	4
------------------------------	---	---	---

An introduction to the field of photography, photographic equipment and materials. A study of the fundamental techniques of the camera and its expressive possibilities in relation to the field of design and visual communications. Assigned camera projects, darkroom procedures and equipment.

Prerequisite: None.

<b>T-CAT 121 Commercial Art &amp; Advertising Design</b>	3	9	6
----------------------------------------------------------	---	---	---

An introduction to drawing and basic design fundamentals and principles. Emphasis is placed on line, two-and three-dimensional shapes, letter indication, sketching, perspective, light and shade, equipment and materials of the art and design profession.

Prerequisite: None.

<b>T-CAT 122 Commercial Art &amp; Advertising Design</b>	3	9	6
----------------------------------------------------------	---	---	---

Advanced material in drawing, basic design, lettering, equipment and materials. Emphasis placed on two and three-dimensional form, perspective, sketching, rough and finished lettering. Laboratory will consist of assigned graphical problems with critique and discussion by class participation.

Prerequisite: T-CAT 121.



<b>T-CAT 123 Commercial Art &amp; Advertising Design</b>	3	9	6
----------------------------------------------------------	---	---	---

Introduction to layout and design for printing. Mechanics of layout, properties of type, and basic reproductive processes. Laboratory exercises will consist of preparation of comprehensive art form for presentation on magazine covers, trademarks, book covers, textile designs, furniture designs, two-and three-dimensional display figures. Assigned graphical problems with critique and discussion by class members.  
Prerequisites: T-CAT 122, T-DFT 102.

<b>T-CAT 205 Advertising Copywriting</b>	3	0	3
------------------------------------------	---	---	---

A study of the techniques used in creating effective advertising copy for various types of media; purposes and duties of the copywriter and legal problems encountered in copywriting. Theory and practice will be given in writing copy for the various media including retail and fashion copy, mail order, direct mail, business publications, radio and television.  
Prerequisite: T-ENG 103.

<b>T-CAT 212 Advertising Illustration</b>	1	3	2
-------------------------------------------	---	---	---

An introduction to advertising illustration through problems in shape, space, and light analysis. Laboratory exercises will explore the use of various media.  
Prerequisite: T-CAT 123.

<b>T-CAT 213 Advertising Illustration</b>	1	3	2
-------------------------------------------	---	---	---

Advanced work and assigned problems in advertising illustration. The student is urged to explore a variety of mediums.  
Prerequisite: T-CAT 212.

<b>T-CAT 214 Advertising Illustration</b>	1	3	2
-------------------------------------------	---	---	---

Assigned problems in advanced illustration. Emphasis is placed on originality and the readiness of the student to explore assigned graphical tasks and problems.  
Prerequisite: T-CAT 213.

<b>T-CAT 217 Photography</b>	2	6	4
------------------------------	---	---	---

Advanced photographic techniques and materials. Participation in studio and laboratory procedures illustrating the various applications and creative possibilities of photography in advertising.  
Prerequisite: T-CAT 116.

<b>T-CAT 224 Commercial Art &amp; Advertising Design</b>	3	9	6
----------------------------------------------------------	---	---	---

An introduction to cartooning, intermediate layout and design techniques for printing. Laboratory assigned graphical problems will cover such topics as color separation, halftones, and materials for the development of posters, show cards, banners, hand-lettered documents, brochures and folders.  
Prerequisite: T-CAT 123.

<b>T-CAT 225 Commercial Art &amp; Advertising Design</b>	3	9	6
----------------------------------------------------------	---	---	---

Advanced problems in layout and design techniques for printing, illustration,



cartooning, animation, display design and lettering. Laboratory and graphic problems dealing with magazine and book illustrations, the fashion figure, outdoor sign writing, displays and exhibits for business and industry.  
Prerequisite: T-CAT 224.

#### **T-CAT 226 Commercial Art & Advertising Design**

3 9 6

A course providing simulated professional working conditions utilizing advanced layout and design techniques for printing. Each student will explore a variety of problems, and present his solutions for general class critique and discussion. This course will climax with the review and presentation of the student's individual portfolio of professional work.  
Prerequisite: T-CAT 225.

#### **T-CAT 231 Painting with Polymers**

2 6 .4

An introduction to the medium: a study of the techniques used in painting and illustration with the relatively new acrylic polymer emulsions. Students may select projects or complete assigned projects.  
Prerequisite: None.

#### **T-CAT 235 Advertising Art Direction**

5 0 5

A study of the techniques used in creating effective advertising for various types of media. The physical consideration of the advertisement such as size, position, color, frequency of insertion, layout, coupons and inquiries. Analysis of techniques to cases in national, retail, mail order, industrial and professional advertising with consideration given to budgetary practices.  
Prerequisites: T-CAT 101, T-CAT 225.

### **CYBERNETICS (CYB)**

#### **T-CYB 201 Introduction to Electromechanical Systems**

3 2 4

An introduction to electromechanical systems, sub-systems, and components. Basic sensing, measuring, and control devices, including fluid power, electrical, electronic, mechanical, and optical devices.  
Prerequisites: T-ELN 101 101, T-PHY 102.

#### **T-CYB 202 Electromechanical Systems**

3 6 5

Analysis of sensing devices, including pressure, temperature, humidity, acceleration, velocity, displacement, force, and other transducers. Survey of associated control circuitry. Open and closed loop electromechanical systems. Laboratory includes study in the maintenance of electromechanical devices.  
Prerequisite: T-CYB 201

#### **T-CYB 203 Electromechanical Systems**

3 6 6

Systems design employing electromechanical components, sub-systems, and systems. System synthesis and analysis. Application of electrical, mechanical and other sub-systems to process and machine tool design.  
Prerequisite: T-CYB 202

## DENTAL (DEN)

<b>DEN 1001 Introduction to Dental Assisting</b>	2	0	2
--------------------------------------------------	---	---	---

An introduction to the history of dental assisting, the modern role of the dental assistant in practice and in relation to other members of the dental health team, and the personal and ethical requirements for safe and effective practice.

Prerequisite: None.

<b>DEN 1002 Dental Materials</b>	2	9	5
----------------------------------	---	---	---

Identification of dental materials, characteristics of each, evaluation of quality, and principles and procedures related to manipulation and storage of various dental materials.

Prerequisite: None.

<b>DEN 1003 Preclinical Sciences I</b>	3	3	4
----------------------------------------	---	---	---

Basic information from bacteriology, anatomy and physiology, and oral and dental anatomy as related to dental science and the practice of dental assisting. Designed as three units which may be scheduled for either concurrent or sequential teaching.

Prerequisite: None.

<b>DEN 1004 Preclinical Sciences II</b>	4	0	4
-----------------------------------------	---	---	---

Fundamental information from oral pathology, pharmacology, nutrition, and common emergencies as related to the role of the dental assistant. Designed in four units to permit flexibility in scheduling.

Prerequisite: DEN 1003.

<b>DEN 1005 Dental Accounting</b>	3	2	4
-----------------------------------	---	---	---

Fundamentals of accounting as applied to dental office procedures. Practice in application of principles to various forms commonly used in the dental office.

Prerequisite: None.

<b>DEN 1006 Clinical Procedures I</b>	5	9	8
---------------------------------------	---	---	---

Principles and procedures related to radiology, dental instruments and equipment, and chairside techniques of dental assisting. Designed in three units for flexibility in scheduling.

Prerequisite: DEN 1002.

<b>DEN 1007 Clinical Procedures II</b>	5	6	7
----------------------------------------	---	---	---

Role of the dental assistant in various dental specialties, such as endodontics, periodontics, orthodontics, prosthodontics, and oral surgery.

Prerequisite: DEN 1006.

<b>DEN 1008 Dental Office Management</b>	4	3	5
------------------------------------------	---	---	---

Principles and procedures related to management of the dental office, including maintenance of inventories, ordering of supplies, patient records, financial records, making appointments and establishing favorable patient relations.

Prerequisite: DEN 1005.

<b>DEN 1009 Dental Office Practice I</b>	<b>0</b>	<b>12</b>	<b>4</b>
------------------------------------------	----------	-----------	----------

Introduction to practice in the dental office or dental clinic, emphasis is on the role of the dental assistant in the operatory in a variety of dental procedures.

Prerequisite: DEN 1008.

<b>DEN 1010 Dental Office Practice II</b>	<b>0</b>	<b>30</b>	<b>10</b>
-------------------------------------------	----------	-----------	-----------

Practice in the dental office or dental clinic; rotation of assignments to encompass experience in office management, the dental laboratory, and the operatory, Emphasis on chairside assisting in a variety of clinical procedures.

Prerequisite: DEN 1009.

<b>DEN 1011 Dental Assistant Seminar</b>	<b>1</b>	<b>0</b>	<b>1</b>
------------------------------------------	----------	----------	----------

Study of personal responsibilities as a practitioner, including employee-employer relations, opportunities for continued development as a person and as a health worker, and importance of organization membership.

Prerequisite: None.

## DRAFTING (DFT)

<b>T-DFT 101 Technical Drafting</b>	<b>1</b>	<b>6</b>	<b>3</b>
-------------------------------------	----------	----------	----------

The field of drafting is introduced as the student begins study of drawing principles and practices for print reading and describing objects in the graphic language. Basic skills and techniques of drafting included are: use of drafting equipment, lettering, freehand orthographic and pictorial sketching, geometric construction, orthographic instrument drawing of principal views, and standards and practices of dimensioning. The principles of isometric, oblique, and perspective are introduced.

Prerequisite: None.

<b>T-DFT 102 Technical Drafting</b>	<b>1</b>	<b>6</b>	<b>3</b>
-------------------------------------	----------	----------	----------

The application of orthographic projection principles to the more complex drafting problems, primary and secondary auxiliary views, simple and successive revolutions, and sections and conventions will be studied. Most important is the introduction of the graphical analysis of space problems. Problems of practical design elements involving points, lines, planes, and a combination of these elements shall be studied. Dimensioning practices for "details" and "working drawings," approved by the American Standards Association will also be included. Introduction is given to intersections and developments of various types of geometrical objects.

Prerequisite: T-DFT 101.

<b>T-DFT 103 Technical Drafting</b>	<b>1</b>	<b>6</b>	<b>3</b>
-------------------------------------	----------	----------	----------

Intersection and developments and their practical solutions. Where applicable, model solutions accompany the problems. The various techniques employed to produce and render isometric and oblique drawings, isometric, dimetric and trimetric projections, will be included.

Prerequisite: T-DFT 102.

<b>T-DFT 201 Technical Drafting</b>	2	6	4
-------------------------------------	---	---	---

Applications and constructions of charts, graphs, and nomographs in engineering and technical data. Screw threads, springs, keys, rivets, piping, and welding symbols, methods of representing and specifying will be covered. Basic mechanisms of motion transfer, gears and cams, will be studied and drawn with emphasis on methods of specifying, calculating, dimensions, and delineating.

Prerequisite: T-DFT 103.

<b>T-DFT 204 Descriptive Geometry</b>	2	4	4
---------------------------------------	---	---	---

Graphic analysis of space problems involving points, lines, planes, connectors, and a combination of these. Practical design problems will be stressed with analytical verification where applicable. Visualization shall be stressed on every problem.

Prerequisites: T-DFT 102, T-MAT 102.

<b>T-DFT 205 Design Drafting I</b>	2	6	4
------------------------------------	---	---	---

Basic design is introduced in the study of motion transfer mechanisms as they relate to power trains. Principles of design sketching, design drawing, layout drafting, detailing from layouts, production drawings and simplified drafting practices constitute areas of study. Types and methods of specifying materials and workmanship are an integral part of the course.

Prerequisites: T-DFT 204, T-MAT 102, T-PHY 102.

<b>T-DFT 206 Design Drafting II</b>	2	6	4
-------------------------------------	---	---	---

Research to solve a problem in design by consulting various manuals, periodicals, and through laboratory experiments. A written technical report, preliminary design sketches, layout drawings, detail drawings, assembly and sub-assembly drawings, pictorial drawings, exploded pictorial assembly, patent drawings and specifications are required as a part of the problem.

Prerequisites: T-DFT 205, T-DFT 210.

<b>T-DFT 211 Mechanisms</b>	3	2	4
-----------------------------	---	---	---

Mathematical and drafting room solutions of problems involving the principles of machine elements. Study of motions of linkage, velocities and acceleration of points within a link mechanism; layout methods for designing cams, belts, pulleys, gears and gear trains.

Prerequisites: T-DFT 201 & 204, T-MAT 103, T-PHY 106.

<b>T-DFT 212 Jig and Fixture Design</b>	2	6	4
-----------------------------------------	---	---	---

Commercial standards, principles, practices and tools of jig and fixture design. Individual project and design work to acquaint students with the types of jigs and fixtures and their design.

Prerequisites: T-DFT 205, T-DFT 211.

<b>T-DFT 226 Air-Conditioning Systems Drawing</b>	0	6	2
---------------------------------------------------	---	---	---

Drawing of air-conditioning systems and study of related architectural and structural elements. Sheet metal intersections and developments and types of duct installation. Air-conditioning and refrigeration layouts, diagrams, and schematics.

Prerequisites: T-DFT 102, T-AHR 103, T-AHR 201, T-AHR 216.



<b>DFT 1101 Schematics &amp; Diagrams: Power Mechanics</b>	0	3	1
------------------------------------------------------------	---	---	---

Interpretation and reading of blueprints. Development of ability to read and interpret blueprints, charts, instruction and service manuals, and wiring diagrams. Information on the basic principles of lines, views, dimensioning procedures, and notes.  
Prerequisite: None.

<b>DFT 1104 Blueprint Reading: Mechanical</b>	0	3	1
-----------------------------------------------	---	---	---

Interpretation and reading of blueprints. Information on the basic principles of the blueprint; lines, views, dimensioning procedures and notes.  
Prerequisite: None.

<b>DFT 1105 Blueprint Reading: Mechanical</b>	0	3	1
-----------------------------------------------	---	---	---

Further practice in interpretation of blueprints as they are used in industry; study of prints supplied by industry; making plans of operations; introduction to drafting room procedures; sketching as a means of passing on ideas, information and processes.  
Prerequisite: DFT 1104.

<b>DFT 1106 Blueprint Reading: Mechanical</b>	0	3	1
-----------------------------------------------	---	---	---

Advanced blueprint reading and sketching as related to detail and assembly drawings used in machine shops. The interpretation of drawings of complex parts and mechanisms for features of fabrication, construction and assembly.  
Prerequisite: DFT 1105.

<b>DFT 1116 Blueprint Reading: Air Conditioning</b>	1	3	2
-----------------------------------------------------	---	---	---

A specialized course in drafting for the heating, air conditioning and refrigeration student. Emphasis will be placed on reading of blueprints that are common to the trade; blueprints of mechanical components, assembly drawings, wiring diagrams and schematics, floor plans, heating system plans including duct and equipment layout plans, and shop sketches. The student will make tracings of floor plans and layout air conditioning systems.  
Prerequisite: DFT 1122.

<b>DFT 1121 Drafting</b>	3	12	7
--------------------------	---	----	---

An introduction to drafting and the study of drafting practices. Instruction is given in the selection, use and care of instruments, singlestroke lettering, applied geometry, freehand sketching consisting of orthographic and pictorial drawings. Orthographic projection, reading and instrument drawing of principal views, single auxiliary views (primary), and double (oblique) auxiliary views will be emphasized. Dimensioning and note practices will be studied with reference to the American Standards Association practices. Methods of reproducing drawings will be included at the appropriate time.  
Prerequisite: None.

<b>DFT 1122 Drafting</b>	3	6	5
--------------------------	---	---	---

The trainee will study simple and successive revolutions and their applications to practical problems. Sections and conventions will be studied and both detail and assembly sections will be drawn. Intersections and developments will be studied by relating the drawing to the sheet metal trades. Models of the assigned drawings will be



made from construction paper, cardboard, or similar materials as a proof of the solution to the problems drawn.

Methods of drawing and projecting axonometric, oblique, and perspective drawings will be studied with emphasis on the practical applications of pictorial drawings. Various methods of shading will be introduced and dimensioning and sectioning of oblique and axonometric pictorials will be done.

Prerequisite: DFT 1121.

<b>DFT 1125 Descriptive Geometry</b>	<b>2</b>	<b>3</b>	<b>3</b>
--------------------------------------	----------	----------	----------

Graphical analysis of space problems. The problems deal with practical design elements involving points, lines, planes, connectors, and a combination of these. Included are problems dealing with solid geometry theorems. Where applicable, each graphical solution shall be accompanied by the analytical solution.

Prerequisite: DFT 1121.

<b>DFT 1131 Mechanical Drafting</b>	<b>3</b>	<b>12</b>	<b>7</b>
-------------------------------------	----------	-----------	----------

An introduction to mechanical drafting beginning with problems concerning precision and limit dimensioning. Methods of fastening materials, and fasteners: keys, rivets, springs, and welding. Symbols will be studied and drawings will be made involving these items. Principles of design will be introduced with the study of basic mechanisms of motion transfer; gears, cams, power trains, pulleys, belting and methods of specifying and calculating dimensions will be studied. Drawings will be made involving these mechanisms.

Prerequisite: DFT 1122.

<b>DFT 1132 Mechanical Drafting</b>	<b>3</b>	<b>12</b>	<b>7</b>
-------------------------------------	----------	-----------	----------

Principles of design sketching, design drawings, layout drafting, detailing from layout drawings, production drawings and simplified drafting practices constitute areas of study. Forging and casting drawings will be made from layouts. Specifications, parts list and bill of materials are emphasized in this course. The student will develop a complete set of working drawings of a tool, jig, fixture or simple machine and learn principles of design, handbook and manual usage.

Prerequisite: DFT 1131.

**ECONOMICS (ECO)**

<b>T-ECO 102 Economics</b>	<b>3</b>	<b>0</b>	<b>3</b>
----------------------------	----------	----------	----------

The fundamental principles of economics including the institutions and practices by which people gain a livelihood. Included is a study of the laws of supply and demand and the principles bearing upon production, exchange, distribution, and consumption both in relation to the individual enterprise and to society at large.

Prerequisite: None.

<b>T-ECO 104 Economics</b>	<b>3</b>	<b>0</b>	<b>3</b>
----------------------------	----------	----------	----------

Greater depth in principles of economics, including a penetration into the composition and pricing of national output, distribution of income, international trade and finance, and current economic problems.

Prerequisite: T-ECO 102.

<b>T-ECO 106 Economics of Transportation</b>	3	0	3
----------------------------------------------	---	---	---

Acquaints the student with the economic aspects of transportation. Complete discussion from the earliest form of basic transportation to our present complex system of transportation. In addition to the historical approach, consideration is given to the economic factors involved in plant location and principles involved in present-day developments of transportation.

Prerequisite: T-ECO 102.

<b>T-ECO 108 Consumer Economics</b>	3	0	3
-------------------------------------	---	---	---

Designed to help the student use his resources of time, energy, and money to get the most out of life. It gives the student an opportunity to build useful skills in buying, managing his finances, increasing his resources, and to understand better the economy in which he lives.

Prerequisite: None.

## ELECTRICAL (ELC)

<b>T-ELC 101 Fundamentals of Electricity</b>	4	4 or 6	6
----------------------------------------------	---	--------	---

Elementary principles of electricity including: basic electric units, Ohms law, Kirchhoffs law, network theorems, magnetics, basic electrical measuring instruments, inductance, capacitance, sine wave analysis, and non-resonant resistive, inductive and capacitive networks.

Prerequisite: None.

<b>T-ELC 102 Fundamentals of Electricity</b>	4	4 or 6	6
----------------------------------------------	---	--------	---

Series and parallel resonant-circuit analysis, resonant and non-resonant transformer analysis, basic diode power supply analysis, introduction to non-linear resistive control devices, and introduction to electro-mechanical devices.

Prerequisite: T-ELC 101.

<b>T-ELC 201 Electrical Machinery</b>	3	0	3
---------------------------------------	---	---	---

A course in the basic understanding and application of electricity to modern industrial machinery. Included is a study of direct current motors, motor controls and protecting devices, transformers, and the industrial applications of this equipment.

Prerequisite: T-PHY 103.

<b>T-ELC 210 Rotating Devices</b>	2	2	3
-----------------------------------	---	---	---

Introduction to electrical machinery. AC and DC motor and generator principles, synchros and servomechanism, alternators and dynamotors, Ward-Leonard and amplitudyne control systems will be analyzed. A general knowledge of the theory, operation, and maintenance of these devices and systems will be stressed.

Prerequisites: T-ELC 102, T-PHY 102.

<b>ELC 1102 Applied Electricity</b>	2	3	3
-------------------------------------	---	---	---

The use and care of test instruments and equipment used in servicing electrical apparatus for air conditioning and refrigeration installations. Electrical principles and procedures for trouble-shooting of the various electrical devices used in air conditioning,

heating, and refrigeration equipment. Included will be transformers, various types of motors and starting devices, switches, electrical heating devices and wiring.  
 Prerequisite: PHY 1101.

<b>ELC 1112 Direct and Alternating Current</b>	<b>5</b>	<b>15</b>	<b>10</b>
------------------------------------------------	----------	-----------	-----------

A study of the structure of matter and the electron theory, the relationship between voltage, current and resistance in series, parallel and series-parallel circuits. Analysis of direct current circuits by Ohm's law and Kirchhoff's law; sources of direct current potentials. Fundamental concepts of alternating current flow; a study of reactance, impedance, phase angle, power and resonance and alternating current circuit analysis.  
 Prerequisite: None.

**ELECTRONIC DATA PROCESSING (EDP)**

<b>T-EDP 101 Functional Wiring Principles</b>	<b>2</b>	<b>3</b>	<b>3</b>
-----------------------------------------------	----------	----------	----------

Principles of wiring necessary to perform basic machine functions of printing, punching, comparing and selection. A series of laboratory experiments support the theoretical aspects of this course.  
 Prerequisite: None.

<b>T-EDP 102 Functional Wiring Principles</b>	<b>2</b>	<b>3</b>	<b>3</b>
-----------------------------------------------	----------	----------	----------

Additional study of the fundamental principles of wiring necessary to perform basic machine functions of printing, punching, comparing and selection with emphasis on the accounting machine. A series of laboratory experiments support the theoretical aspects of this course.  
 Prerequisite: T-EDP 101.

<b>EDP 103S Concepts of Data Processing</b>	<b>4</b>	<b>0</b>	<b>4</b>
---------------------------------------------	----------	----------	----------

A survey of the manual, automatic, and electronic methods of processing data as applied to business systems.

<b>T-EDP 104 Introduction to Data Processing Systems</b>	<b>3</b>	<b>2</b>	<b>4</b>
----------------------------------------------------------	----------	----------	----------

Fundamental concepts and operational principles of data processing systems, as an aid in developing a basic knowledge of computers, prerequisite to the detail study of particular computer problems. This course is a prerequisite for all programming courses.  
 Prerequisite: None.

<b>T-EDP 106 Business Programming</b>	<b>2</b>	<b>4</b>	<b>4</b>
---------------------------------------	----------	----------	----------

The effective use of data processing equipment in meeting the information needs of business; utilizing the symbolic programming system as a tool in the solution of problems. The scope of the problems developed will vary from a modest payroll procedure to the total information retrieval for a large and complex business.  
 Prerequisites: T-EDP 101, T-MAT 101, E-EDP 104.

<b>T-EDP 108 Scientific Programming</b>	<b>2</b>	<b>4</b>	<b>4</b>
-----------------------------------------	----------	----------	----------

Designed to provide the student with sufficient knowledge of programming concepts so that he may easily master any specific system with a minimum of instruction. The

student will analyze, evaluate and make minor program modifications. (Specific systems are treated in detail so that the student may learn advanced programming and logical decision making techniques as applied in sophisticated systems.)

Prerequisites: T-EDP 106, T-MAT 102.

<b>T-EDP 202 Programming System Techniques</b>	3	4	5
------------------------------------------------	---	---	---

The student will investigate the functions and capabilities of different data processing machines and will become familiar with some of the procedures necessary for programming objectives. Programming drills, exercises and case studies will add the realism of processing data to theoretical knowledge.

Prerequisites: T-EDP 102, T-EDP 104, T-EDP 108.

<b>T-EDP 205 Linear Programming and Critical Path Method</b>	4	2	5
--------------------------------------------------------------	---	---	---

Lecture and case problems encompassing the scope and potential of using mathematical programming with computers to increase industrial efficiency. This course presents the network technique of management planning, scheduling and control. Basic rules of network planning are presented with laboratory assignments designed to implement the theoretical aspects of Critical Path Methods (CPM).

Prerequisites: T-EDP 108, T-MAT 103, T-EDP 202.

<b>T-EDP 208 Advance Programming Techniques</b>	2	6	5
-------------------------------------------------	---	---	---

Detail analysis and study of computer software, mathematical modeling, simulation, and game theory. Designed to present an overview of the more complex computer applications which have been designed to facilitate decision making.

Prerequisites: T-EDP 108, T-EDP 205.

<b>T-EDP 211 Procedures and Techniques of Automated Design</b>	4	4	6
----------------------------------------------------------------	---	---	---

Designed to acquaint the student with existing techniques used to evaluate, modify and determine the existing relationships between isolated events and realization of the objective function. CPM, PERT, PEP and COGO are discussed in great detail, and new concepts and procedures are hypothesized and developed.

Prerequisites: T-MAT 214, T-BUS 225, T-EDP 108, T-EDP 205.

<b>T-EDP 216 Research Project</b>	1	8	5
-----------------------------------	---	---	---

Individual assignments of a carefully selected project will be the work of the student during this quarter. It will give the student an opportunity to initiate and carry out a project taken from outside the school. This course places the responsibility upon the student to solve a significant problem with a minimum of assistance from the instructor.

Prerequisite: T-EDP 205.

<b>T-EDP 219 Systems and Procedures</b>	3	4	5
-----------------------------------------	---	---	---

A study of the problems of system design and installation. Systems used in various type businesses are studied and discussed. Actual practice is given by the students. Practical application in the preparation of a full-length report is required of each student at the end of the term. This report must have to do with something in his chosen curriculum.

Prerequisite: T-ENG 102.



**EDP 260S Introduction to the IBM 360**

3

0

3

A study of the characteristics of the IBM 360 computer. Topics studied include input-output equipment, data representation, and programming systems with special emphasis on assembly level programming and a selected compiler level language.

**ELECTRONICS (ELN)****T-ELN 101 Electronic Instruments and Measurements**

1

4 or 6

3

A study of basic electronic instruments, their theory of operation, function, tolerances, and calibration. Both service and laboratory instruments will be studied. Laboratory experience will provide application of each type instrument studied.

Prerequisite: T-ELC 102.

**T-ELN 105 Control Devices**

5

4 or 6

7

A study in depth of the electrical characteristics of vacuum tubes and transistors. Basic parameters and applications of each type device to the three configurations of a three terminal two port system will be included.

Prerequisite: T-ELC 102.

**T-ELN 201 Industrial Controls**

3

2

4

Industrial controls is the study of modern methods of controlling machinery by electronic circuitry. Machinery controls and electronic mechanisms that automatically operates machines will be studied. Types of motors, generators, control signals and devices, thyratrons, gates, switches, and servomechanism circuits are major areas of study.

Prerequisite: T-PHY 103.

**T-ELN 205 Applications of Vacuum Tubes and Transistors**

5

4 or 6

7

Practical applications of vacuum tubes and transistors to basic audio amplifiers, radio frequency amplifiers, detectors, modulators and oscillators.

Prerequisite: T-ELN 105.

**T-ELN 210 Semiconductor Circuit Analysis**

5

2 or 3

6

A study in some depth of the analysis and design of transistor circuits. Network theorems and equivalent circuits are used extensively in evaluating total circuit performance. Device peculiarities and limitations pertinent to reliable operations are considered. H, Y, Z, and T, parameters are employed as well as signal-flow graphs.

Prerequisite: T-ELN 105.

**T-ELN 214 Wave Shaping and Pulse Circuits**

2

2 or 3

3

Broadband amplifiers, magnetic amplifiers, multivibrators, wave shaping techniques, chopper amplifiers, clipper and clamper circuits.

Prerequisites: T-ELN 105, T-MAT 103.



<b>T-ELN 215 Wave Shaping and Pulse Circuits</b>	<b>2</b>	<b>2 or 3</b>	<b>3</b>
--------------------------------------------------	----------	---------------	----------

Pulse techniques, diode switches, gates, step-counters, restorers and other specific circuits which function as switches.

Prerequisite: T-ELN 214.

<b>T-ELN 220 Electronic Systems</b>	<b>5</b>	<b>4 or 6</b>	<b>7</b>
-------------------------------------	----------	---------------	----------

A block diagram course investigating numerous electronic systems. Modules or blocks of various circuits already studied are arranged in various manners to produce complex electronic systems. Systems will be explained and reduced to functions and then to block diagrams. AM, FM, and Single Sideband transmitters and receivers, multiplexing, TV transmitters and receivers, pulse-modulated systems, computers, telemetry, navigational systems, sonar and radar will be considered.

Corequisite: T-ELN 215.

<b>T-ELN 225 Transmission and Propagation</b>	<b>3</b>	<b>0</b>	<b>3</b>
-----------------------------------------------	----------	----------	----------

An introduction to the electromagnetic radiation, principles of antenna, radiation patterns and field strength. The characteristics and use of transmission lines in radio frequency application. Factors involved in propagation, ground waves, reflections, sky waves, atmospheric effects, ionosphere, fading, noise, static, wire radiators, directive gain, effect of ground, impedance, antenna systems and arrays.

Prerequisite: T-ELN 105.

Corequisite: T-ELN 205.

<b>T-ELN 227 UHF and Microwave Systems</b>	<b>5</b>	<b>4</b>	<b>7</b>
--------------------------------------------	----------	----------	----------

A study of UHF and VHF components, circuits, and measurement techniques. The use of distributed constant elements, waveguides and coaxial cables, microwave links, high frequency oscillators, magnetrons, klystrons, traveling wave tubes. An introduction to the use of the Smith Chart.

Prerequisite: T-ELN 225.

<b>T-ELN 230 Television Systems</b>	<b>4</b>	<b>6</b>	<b>7</b>
-------------------------------------	----------	----------	----------

A study of the principles of television including the television system, camera tubes, scanning and synchronization, composite video signal, receiver circuits, transmitting equipment, color television, and closed-loop systems.

Corequisite: T-ELN 214.

<b>T-ELN 235 Industrial Instrumentation</b>	<b>4</b>	<b>6</b>	<b>7</b>
---------------------------------------------	----------	----------	----------

Broad introduction to use of industrial electro-mechanical and electronic circuits and equipment. Provides an understanding of the methods, techniques, and skills required for installation, service and operation of a variety of industrial control systems. Analysis of sensing devices for detecting changes in pressure, temperature, humidity, sound, light, electricity, the associated circuitry and indicating and recording devices.

Prerequisites: T-ELN 205, T-PHY 104.

<b>T-ELN 240 Digital Computers</b>	<b>3</b>	<b>0</b>	<b>3</b>
------------------------------------	----------	----------	----------

An exploration into the methodology of counting and computing. Various computer techniques will be investigated including: non-sinusoidal waveforms, binary and decade counters, industrial counters, readout devices, logic circuits, arithmetic circuits,

storage devices, input-output devices, computer control, analog and digital converters.  
Prerequisite: T:ELN 214.

**T-ELN 245 Electronic Design Project** 0 4 2

Students are required to design and construct a project approved by the instructor. Includes selection of project, design, construction, and testing of completed project. Projects may include: AM or FM transmitters or receivers, amplifiers, test equipment, control devices, simple counters, lasers, masers, etc.  
Prerequisite: T-ELN 205.

**ENGLISH**

**T-ENG 101 Grammar** 3 0 3

Designed to aid the student in the improvement of self-expression in grammar. The approach is functional with emphasis on grammar, diction, sentence structure, punctuation, and spelling. Intended to stimulate students in applying the basic principles of English grammar in their day-to-day situations in industry and social life.  
Prerequisite: None.

**T-ENG 102 Composition** 3 0 3

Designed to aid the student in the improvement of self-expression in business and technical composition. Emphasis is on the sentence, paragraph, and whole composition.  
Prerequisite: T-ENG 101.

**T-ENG 103 Report Writing** 3 0 3

The fundamentals of English are utilized as a background for the organization and techniques of modern report writing. Exercises in developing typical reports, using writing techniques and graphic devices are completed by the students. Practical application in the preparation of a full-length report is required of each student at the end of the term. This report must have to do with something in his chosen curriculum.  
Prerequisite: T-ENG 102.

**T-ENG 204 Oral Communication** 3 0 3

A study of basic concepts and principles of oral communications to enable the student to communicate with others. Emphasis is placed on the speaker's attitude, improving diction, voice, and the application of particular techniques of theory to correct speaking habits and to produce effective oral presentation. Particular attention is given to conducting meetings, conferences, and interviews.  
Prerequisite: T-ENG 101.

**T-ENG 206 Business Communication** 3 0 3

Develops skills in techniques in writing business communications. Business reports, summaries of business conferences, letters involving credit, collections, adjustments, complaints, orders, acknowledgments, remittances, and inquiry.  
Prerequisite: T-ENG 102.

<b>T-ENG 208 Reading Enrichment</b>	<b>3</b>	<b>0</b>	<b>3</b>
-------------------------------------	----------	----------	----------

This course is designed to guide the student in a better understanding and a greater appreciation of our literary heritage.

In general, selected poetry, short stories, plays, and the novel will be studied.

Emphasis will be given to some of the influential and outstanding writers and their contributions.

Prerequisites: None.

<b>ENG 1101 Reading Improvement</b>	<b>2</b>	<b>0</b>	<b>2</b>
-------------------------------------	----------	----------	----------

Designed to improve the student's ability to read rapidly and accurately. Special machines are used for class drill to broaden the span of recognition, to increase eye coordination and word group recognition and to train for comprehension in larger units.

Prerequisite: None.

<b>ENG 1102 Communication Skills</b>	<b>3</b>	<b>0</b>	<b>3</b>
--------------------------------------	----------	----------	----------

Designed to promote effective communication through correct language usage in speaking and writing.

Prerequisite: ENG 1101.

<b>ENG 1103 Report Writing</b>	<b>3</b>	<b>0</b>	<b>3</b>
--------------------------------	----------	----------	----------

Fundamentals of correct language usage applied to report writing. Emphasis is on principles of report construction and application to various report forms.

Prerequisite: ENG 1102.

<b>T-ISC 201 Industrial Organization and Management</b>	<b>3</b>	<b>0</b>	<b>3</b>
---------------------------------------------------------	----------	----------	----------

Organizational structure for industrial management; operational and financial activities, including accounting, budgeting, banking, credit and industrial risk, forecasting of markets, selection and layout of physical facilities; selection, training and supervision of personnel as found in typical industrial organizations.

Prerequisite: None.

<b>T-ISC 202 Quality Control</b>	<b>3</b>	<b>2</b>	<b>4</b>
----------------------------------	----------	----------	----------

Principles and techniques of quality control and cost saving. Organization and procedure for efficient quality control. Functions, responsibilities, structure, costs, reports, records, personnel and vendor-customer relationships in quality control. Sampling inspections, process control and tests for significance.

Prerequisite: None.

<b>T-ISC 203 Motion Study</b>	<b>3</b>	<b>2</b>	<b>4</b>
-------------------------------	----------	----------	----------

Types of methods studies and their applications. Process charts, analysis sheets, time study, work simplification, skill and effort rating.

Prerequisite: None.

<b>T-ISC 204 Value Analysis</b>	<b>3</b>	<b>0</b>	<b>3</b>
---------------------------------	----------	----------	----------

The modern concept in the control of manufacturing production. This course will provide the students an opportunity to study a production system with the specific

purpose of identifying unnecessary costs. The objective of the concepts and techniques of value analysis is to make possible a degree of effectiveness in **identifying** and **removing** unnecessary cost by the use of sound decisions through a common sense approach.

Prerequisite: None.

<b>T-ISC 209 Plant Layout</b>	<b>3</b>	<b>2</b>	<b>4</b>
-------------------------------	----------	----------	----------

A practical study of factory planning with emphasis on the most efficient arrangements of work areas to achieve lower manufacturing costs. Layouts for small and medium-sized plants, layout fundamentals, selection of production equipment and materials handling equipment. Effective management of men, money and materials in a manufacturing operation.

Prerequisites: T-MEC 201, T-DFT 102.

**MATHEMATICS**

<b>T-MAT 101 Technical Mathematics</b>	<b>5</b>	<b>0</b>	<b>5</b>
----------------------------------------	----------	----------	----------

The real number system is developed as an extension of natural numbers. Number systems of various bases are introduced. Fundamental algebraic operations, the rectangular coordinate system, as well as fundamental trigonometric concepts and operations are introduced. The application of these principles to practical problems is stressed.

Prerequisite: Satisfactory evidence that admission requirements have been met.

<b>T-MAT 102 Technical Mathematics</b>	<b>5</b>	<b>0</b>	<b>5</b>
----------------------------------------	----------	----------	----------

The fundamental concepts of analytical geometry, differential and integral calculus are introduced. Topics included are graphing techniques, geometric and algebraic interpretation of the derivative, differentials, rate of change, the integral and basic integration techniques. Applications of these concepts to practical situations are stressed.

Prerequisite: T-MAT 102.

<b>T-MAT 103 Technical Mathematics</b>	<b>5</b>	<b>0</b>	<b>5</b>
----------------------------------------	----------	----------	----------

The fundamental concepts of analytical geometry, differential and integral calculus are introduced. Topics included are graphing techniques, geometric and algebraic interpretation of the derivative, differentials, rate of change, the integral and basic integration techniques. Applications of these concepts to practical situations are stressed.

Prerequisite: T-MAT 102.

<b>T-MAT 110 Business Mathematics</b>	<b>5</b>	<b>0</b>	<b>5</b>
---------------------------------------	----------	----------	----------

This course stresses the fundamental operations and their application to business problems. Topics covered include payrolls, price marking, interest and discount, commission, taxes, and pertinent uses of mathematics in the field of business.

Prerequisite: None.



**T-MAT 121 Numbering System and Boolean Algebra**

4

0

4

A cursory treatment of the base-ten numbering system; functional introduction to numbering systems with bases other than 10, transformation from one system to another; fundamental operation in systems other than the decimal; a detailed study of the binary system in relation to machine calculations; principles of Boolean Algebra and its contribution to digital devices and data processing.

Prerequisite: None.

**T-MAT 201 Technical Mathematics**

5

0

5

A continuation of T-MAT 103. More advanced concepts of differentiation and integration are considered. Included are graphs and derivatives of the trigonometric functions, exponential and logarithmic differentiation and integration, advanced integration techniques, polar equations, parametric equations and Fourier series.

Prerequisite: T-MAT 103.

**T-MAT 208 Calculus and Laplace Transforms for Electronics**

5

0

5

An investigation of the methods of calculus which are of the most direct use in the study of electronic circuits. Introduction to selected topics from differential equations and Laplace transforms and applications of these methods to the solution of electronic circuit problems.

Prerequisite: T-MAT 201.

Corequisite: T-ELN 214.

**T-MAT 214 Statistics**

5

0

5

The theory of statistics and its application in modern business. Kinds of regularity that exist among random fluctuations. Experience in associating and using mathematical models to interpret physical phenomena and predicting the outcomes of experiments related to practical business problems.

Prerequisite: T-MAT 102.

**T-MAT 215 Statistics**

5

0

5

Practical experiences in the statistical solution of business problems through the use of computers. Methods of organizing, presenting and interpreting data.

Prerequisite: T-MAT 214.

**MAT 215S Statistical Programming**

3

2

4

Practical experience in the statistical solution of business problems through the use of computers. Measures of central tendency, variation, confidence intervals, tests of hypotheses, and relationships between variables calculated by programming. Methods of organizing, analyzing, interpreting and presenting data are studied.

Prerequisite: T-MAT 214.

**T-MAT 219 Differential Equations**

5

0

5

Methods of solving first-order and simple higher order ordinary differential equations and linear differential equations with constant coefficients; solution of differential equations by series; and numerical solutions of differential equations.

Prerequisite: T-MAT 201.



<b>T-MAT 225 Numerical Analysis</b>	<b>5</b>	<b>0</b>	<b>5</b>
-------------------------------------	----------	----------	----------

A development of the mathematical principles upon which many computing methods are based. Topics introduced include theory of errors, numerical integration and differentiation, summation procedures, numerical solution of equations, and approximations of various types.

Prerequisite: T-MAT 201.

<b>MAT 1101 Fundamentals of Mathematics</b>	<b>5</b>	<b>0</b>	<b>5</b>
---------------------------------------------	----------	----------	----------

Practical number theory. Analysis of basic operations: addition, subtraction, multiplication and division. Fractions, decimals, powers and roots, percentages, ratio and proportion. Plane and solid geometric figures used in industry; measurement of surfaces and volumes. Introduction to algebra used in trades. Practice in depth.

Prerequisite: None.

<b>MAT 1102 Algebra</b>	<b>5</b>	<b>0</b>	<b>5</b>
-------------------------	----------	----------	----------

Basic concepts and operations of algebra: historical background of our base-10 number system; algebraic operations: addition, subtraction, multiplication and division; fractions, letter representation, grouping, factoring, ratio and proportions, variation; graphical and algebraic solution of first degree equations; solution of simultaneous equations by: addition and subtraction, substitution, graphing, exponents, logarithms, tables and interpolations.

Prerequisite: None.

<b>MAT 1103 Geometry</b>	<b>3</b>	<b>0</b>	<b>3</b>
--------------------------	----------	----------	----------

Fundamental properties and definitions; plane and solid geometric figures, selected general theorems, geometric construction of lines, angles and plane figures. Dihedral angles, areas of plane figures, volumes of solids. Geometric principles are applied to shop operations.

Prerequisite: None.

<b>MAT 1104 Trigonometry</b>	<b>3</b>	<b>0</b>	<b>3</b>
------------------------------	----------	----------	----------

Trigonometric ratios; solving problems with right triangles, using tables, and interpolating; solution of oblique triangles using law of sines and law of cosines; graphs of the trigonometric functions; inverse functions, trigonometric equations. All topics are applied to practical problems.

Prerequisite: MAT 1103.

<b>MAT 1115 Electrical Mathematics</b>	<b>5</b>	<b>0</b>	<b>5</b>
----------------------------------------	----------	----------	----------

An introductory algebra course with trigonometry and vectors needed in alternating current: algebraic operations of addition, subtraction, multiplication and division; use of letters and signs, grouping, factoring; exponents, ratios and proportions; algebraic and graphic solutions of first-degree equations; introduction to trigonometric functions, their graphs and applications to right triangles, addition, subtraction and resolution of vector quantities.

Prerequisite: None.

<b>MAT 1116 Electrical Mathematics</b>	<b>5</b>	<b>0</b>	<b>5</b>
----------------------------------------	----------	----------	----------

A working knowledge of the powers of 10, Ohm's law for series and parallel circuits,

quadratic equations, Kirchhoff's Laws, trigonometric functions, plane vectors, alternating currents, vector algebra and logarithms.

Prerequisite: MAT 1115.

<b>MAT 1123 Machinist Mathematics</b>	<b>3</b>	<b>0</b>	<b>3</b>
---------------------------------------	----------	----------	----------

Introduces gear ratio, lead screw and indexing problems with emphasis on application to the machine shop. Practical applications and problems furnish the trainee with experience in geometric propositions and trigonometric relations to shop problems; concludes with an introduction to compound angle problems.

Prerequisite: MAT 1104.

## MECHANICAL (MEC)

<b>T-MEC 101 Machine Processes</b>	<b>0</b>	<b>6°</b>	<b>2</b>
------------------------------------	----------	-----------	----------

An introductory course designed to acquaint the student with basic hand tools, safety procedures and machine processes of our modern industry. It will include a study of measuring instruments, characteristics of metals and cutting tools. The student will become familiar with the lathe family of machine tools by performing selected operations such as turning, facing, threading, drilling, boring, and reaming.

Prerequisite: None.

<b>T-MEC 102 Machine Processes</b>	<b>0</b>	<b>6°</b>	<b>2</b>
------------------------------------	----------	-----------	----------

Advanced operations on lathe, drilling, boring and reaming machines. Milling machine theory and practice. Thorough study of the types of milling machines, cutters, jig and fixture devices, and the accessories used in a modern industrial plant. Safety in the operational shop is stressed.

Prerequisite: T-MEC 101.

<b>T-MEC 103 Machine Processes</b>	<b>0</b>	<b>6°</b>	<b>2</b>
------------------------------------	----------	-----------	----------

Modern machine tools of industry. Theory and practice with shaper, slotter, planer, turret lathe, screw machine, grinding and finishing machines. Gear design and the processes of gear manufacturing.

Prerequisite: T-MEC 102.

<b>T-MEC 110 Fundamental Mechanisms</b>	<b>2</b>	<b>4</b>	<b>4</b>
-----------------------------------------	----------	----------	----------

A study of the purpose and actions of cams, cables, gear trains, differentials, screws, belts, pulleys, shafts, levers, and other mechanical devices used to transmit or control signals.

Prerequisite: T-PHY 102.

<b>T-MEC 116 Engineering Materials</b>	<b>3</b>	<b>0</b>	<b>3</b>
----------------------------------------	----------	----------	----------

Study and testing of the properties of ferrous and non-ferrous metals and plastics, load and strain measurements, behavior of materials under load, qualities other than strength and control of the properties of the materials.

Prerequisite: T-PHY 102.

<b>T-MEC 201 Machine Processes</b>	<b>2</b>	<b>6</b>	<b>4</b>
------------------------------------	----------	----------	----------

Newer concepts of work handling and automatic machining process. Chipless production and new techniques in metal forming. Analysis of high-energy forming, ultrasonic machining, electrolytic metal removal, chemical milling, numerical controls and simplified building block numerical control systems.

Prerequisite: T-MEC 103.

<b>T-MEC 205 Strength of Materials</b>	<b>3</b>	<b>2</b>	<b>4</b>
----------------------------------------	----------	----------	----------

Study of principles and analysis of stresses which occur within machine and structure elements subjected to various types of loads such as static, impact, varying and dynamic. Analyses of these stresses are made as applied to thin-walled cylinder and spheres, riveted and welded joints, beams, columns and machine components.

Prerequisites: T-PHY 106, T-MAT 102.

<b>T-MEC 210 Physical Metallurgy</b>	<b>3</b>	<b>3°</b>	<b>4</b>
--------------------------------------	----------	-----------	----------

Introductory course in metallurgy, a basic study of the properties of metals and alloys. Analysis of the structure of metals and alloys, atomic structure, nuclear structure, and nuclear reactions. Solid (crystalline) structures, methods of designating crystal planes, liquid and vapor phases, phase diagrams, and alloy systems.

Prerequisite: T-PHY 101.

<b>T-MEC 211 Physical Metallurgy</b>	<b>3</b>	<b>3°</b>	<b>4</b>
--------------------------------------	----------	-----------	----------

Properties of metals and alloys, the reactions of metals, diffusion, carburizing, metal bonding and homogenization, recrystallization and grain growth, age hardening, nitriding, internal oxidation, heat treatment of steel, laboratory experiments and demonstrations.

Prerequisite: T-MEC 210.

<b>T-MEC 212 Practical Automation</b>	<b>3</b>	<b>2</b>	<b>4</b>
---------------------------------------	----------	----------	----------

A comprehensive study of automation as it is interpreted and practiced by American industry of today. The fundamentals of automation and its effects in industrial productivity, labor supply and demand, equipment and processes. Students will solve problems encountered while installing an automated system.

Prerequisite: None.

<b>T-MEC 213 Production Planning</b>	<b>3</b>	<b>3°</b>	<b>4</b>
--------------------------------------	----------	-----------	----------

Day-to-day plant direction; forecasting, product planning and control, scheduling, dispatching, routing, and inventory control. Case histories are discussed in the classroom, and courses of corrective action are developed. Drafting room layouts for planning and control.

Prerequisite: T-DFT 102.

Corequisite: T-MEC 201.

<b>T-MEC 214 Tool Engineering</b>	<b>3</b>	<b>0</b>	<b>3</b>
-----------------------------------	----------	----------	----------

An introduction to the problems of tool engineering with emphasis on planning the processes of production, designing and developing the necessary tools, and utilizing available manufacturing facilities; practical analysis and comparison of the use and cost of tools, jigs and fixtures, dies, molds, and gauges as they are utilized in our modern day manufacturing and production methods. Prerequisites: T-DFT 102, T-MEC 201.

<b>T-MEC 235 Hydraulics and Pneumatics</b>	3	3°	4
--------------------------------------------	---	----	---

The basic theories of hydraulic and pneumatic systems. Combinations of systems in various circuits. Basic designs and functions of circuits and motors, controls, electrohydraulic servomechanisms, plumbing, filtration, accumulators and reservoirs. Prerequisite: T-PHY 102.

<b>T-MEC 237 Control Systems</b>	2	4	4
----------------------------------	---	---	---

Hydraulic, pneumatic, mechanical, electrical and electronic control systems and components. Basic description, analysis and explanation of operation. Typical performance characteristics, limitations on performance, accuracy, applications and their utilization in industrial processes. Prerequisites: T-PHY 102, T-ELC 201.

<b>MEC 1101 Machine Shop Theory and Practice</b>	3	12	7
--------------------------------------------------	---	----	---

An introduction to the machinist trade and the potential it holds for craftsman. Deals primarily with the identification, care and use of basic hand tools and precision measuring instruments. Elementary layout procedures and processes of lathe, drill press, grinding (off-hand) and milling machines will be introduced both in theory and practice. Prerequisite: None.

<b>MEC 1102 Machine Shop Theory and Practice</b>	3	12	7
--------------------------------------------------	---	----	---

Advanced operations in layout tools and procedures, power sawing, drill press, surface grinder, milling machine shaper. The student will be introduced to the basic operations on the cylindrical grinder and will select projects encompassing all the operations, tools and procedures thus far used and those to be stressed throughout the course. Prerequisite: MEC 1101.

<b>MEC 1103 Machine Shop Theory and Practice</b>	3	12	7
--------------------------------------------------	---	----	---

Advanced work on the engine lathe, turning, boring and threading machines, grinders, milling machine and shaper. Introduction to basic indexing and terminology with additional processes on calculating, cutting and measuring of spur, helical, and worm gears and wheels. The trainee will use precision tools and measuring instruments such as vernier height gages, protractors, comparators, etc. Basic exercises will be given on the turret lathe and on the tool and cutter grinder. Prerequisite: MEC 1102.

<b>MEC 1104 Machine Shop Theory and Practice</b>	3	12	7
--------------------------------------------------	---	----	---

Development of class projects using previously learned procedures in planning, blueprint reading, machine operations, final assembly and inspection. Additional processes on the turret lathe, tool and cutter grinder, cylindrical and surface grinder, advanced milling machine operations, etc. Special procedures and operations, processes and equipment, observing safety procedures faithfully and establishing of good work habits and attitudes acceptable to the industry. Prerequisite: MEC 1103.

<b>MEC 1113 Shop Processes</b>	2	3	3
--------------------------------	---	---	---

Study of practices used in metalworking shops: introduction to how materials can



be utilized, and to the processes of shaping, forming and fabricating of metals. Demonstration of the metalworking lathes, grinders, drills, milling machines, shapers, planers, saws, broachers, gear cutting machines and finishing machines. A study of the capabilities of these machines.  
Prerequisite: None.

<b>MEC 1114 Shop Processes</b>	2	3	3
--------------------------------	---	---	---

Comparison of the unit-production and mass-production systems. Casting, forging and allied processes, welding and sheet metal working processes are demonstrated and discussed. Mass-production methods are studied in relationship to precision dimensional control.  
Prerequisite: MEC 113.

<b>MEC 1115 Treatment of Ferrous Metals</b>	2	3	3
---------------------------------------------	---	---	---

Investigates the properties of ferrous metals and tests to determine their uses. Instructions will include some chemical metallurgy to provide a background for the understanding of the physical changes and causes of these changes in metals. Physical metallurgy of ferrous metals, producing iron and steel, theory of alloys, shaping and forming, heat treatments for steel, surface treatments, alloy of special steel, classification of steels, and cast iron will be topics for study.  
Prerequisite: None.

<b>MEC 1116 Treatment of Non-Ferrous Metals</b>	2	3	3
-------------------------------------------------	---	---	---

Continuation of the study of physical metallurgy. The non-ferrous metals: bearing metals, (brass, bronze, lead), light metals (aluminum and magnesium), and copper and its alloys are studied. Power metallurgy, titanium, zirconium, indium and vanadium are included in this course.  
Prerequisite: MEC 1115.

<b>MEC 1120 Duct Construction and Maintenance</b>	3	6	5
---------------------------------------------------	---	---	---

Study of various duct materials including sheet steel, aluminum, and fiber glass. Safety, sheet metal hand tools, cutting and shaping machines, fasteners and fabrication practices, layout methods, and development of duct systems. The student will service various duct systems and perform on the site repairs including ducts made of fiber glass. A study is made of duct fittings, dampers and regulators, diffusers, heater and air washers, fans, insulation and ventilating hoods.  
Prerequisites: DFT 1116, AHR 1123.  
Corequisite: AHR 1126.

**PHYSICS (PHY)**

<b>T-PHY 101 Physics: Properties of Matter</b>	3	2	4
------------------------------------------------	---	---	---

A fundamental course covering several basic principles of physics. The divisions included are solids and their characteristics, liquids at rest and in motion, gas laws and applications. Laboratory experiments and specialized problems dealing with these topics are part of this course.  
Prerequisite: None.



<b>T-PHY 102 Physics: Work, Energy, Power</b>	3	2	4
-----------------------------------------------	---	---	---

Major areas covered in this course are work, energy, and power. Instruction includes such topics as statics, forces, center of gravity, and dynamics. Units of measurement and their applications are a vital part of this course. A practical approach is used in teaching students the use of essential mathematical formulas.

Prerequisites: T-MAT 101, T-PHY 101.

<b>T-PHY 103 Physics: Electricity</b>	3	2	4
---------------------------------------	---	---	---

Basic theories of electricity, types of electricity, methods of production, and transmission and transforming of electricity. Electron theory, electricity by chemical action, electricity by friction, electricity by magnetism, induction voltage, amperage, resistance, horsepower, wattage, and transformers are major parts of the course.

Prerequisites: T-MAT 102, T-PHY 101.

<b>T-PHY 104 Physics: Light and Sound</b>	3	2	4
-------------------------------------------	---	---	---

A survey of the concepts involving wave motion leads to a study of sound, its generation, transmission and detection. The principles of wave motion also serves as an introduction to a study of light, illumination and the principles involved in optical instruments. Application is stressed throughout.

Prerequisites: T-MAT 101, T-PHY 102.

<b>T-PHY 106 Applied Mechanics</b>	5	0	5
------------------------------------	---	---	---

Concepts and principles of statics and dynamics. Parallel concurrent and noncurrent force systems in coplanar and noncoplanar situations. Concepts of centroids and center of gravity, moments of inertia, fundamentals of kinetics, and kinematics of velocity and motion.

Prerequisites: T-MAT 102, T-PHY 102.

<b>T-PHY 231 Fluid Mechanics</b>	3	0	3
----------------------------------	---	---	---

Fundamental laws of fluid flow and application of these laws to the sizing of hot and cold water piping, steam piping, refrigerant piping, air ducts, pumps, and fans. Particular emphasis will be directed to calculations of capacity, horsepower, and head requirements of pumps and fans; to comparison of the several methods of piping and air duct sizing; and to methods of fluid flow measurement.

Prerequisites: T-MAT 103, T-PHY 102.

<b>PHY 1101 Applied Science</b>	3	2	4
---------------------------------	---	---	---

An introduction to physical principles and their application in industry.

Topics in this course include measurement; properties of solids, liquids, and gases; basic electrical principles.

Prerequisite: None.

<b>PHY 1102 Applied Science</b>	3	2	4
---------------------------------	---	---	---

The second in a series of two courses of applied physical principles. Topics introduced in this course are heat and thermometry, and principles of force, motion, work, energy, and power.

Prerequisite: PHY 1101.

## POLITICAL SCIENCE (POL)

<b>T-POL 201 United States Government</b>	3	0	3
-------------------------------------------	---	---	---

A study of government emphasis on basic concepts, structure, powers, procedures and problems.

Prerequisite: None.

## POWER MECHANICS (PME)

<b>PME 1101 Internal Combustion Engine</b>	3	12	7
--------------------------------------------	---	----	---

Development of a thorough knowledge and ability in using, maintaining, and storing the various hand tools and measuring devices needed in engine repair work. Study of the construction and operation of components of internal combustion engines. Testing of engine performance; servicing and maintenance of pistons, valves, cams and camshafts, fuel and exhaust systems, cooling systems; proper lubrication; and methods of testing, diagnosing and repairing.

Prerequisite: None.

<b>PME 1102 Engine Electrical and Fuel Systems</b>	5	12	9
----------------------------------------------------	---	----	---

A thorough study of the electrical and fuel systems of the automobile. Battery cranking mechanism, generator, ignition, accessories and wiring; fuel pumps, carburetors, and fuel injectors. Characteristics of fuels, types of fuel systems, special tools, and testing equipment for the fuel and electrical system.

Prerequisite: PME 1101.

## PRACTICAL NURSING (PNE)

<b>PNE 1101 Personal and Community Health</b>	2	0	0	2
-----------------------------------------------	---	---	---	---

This course is a study of total health and health habits and their effect on the individual, the family, and the environment in which they live. The study of health resources available to all persons and selected agencies that may be visited for special learning.

Prerequisite: None

<b>PNE 1002 Basic Sciences</b>	5	2	0	6
--------------------------------	---	---	---	---

This course is designed to give the student an understanding and appreciation of basic science principles and their relationship to practical nursing. The course includes study of the structure and functions of the nine systems of the body, the basic principles of nutrition which involves mechanics of digestion, absorption and metabolism, nutritional requirements for all age groups both sick and well, and selected learning of Bacteriology as related to the prevention of diseases, promotion of health, and the nurse's responsibilities in protecting the patients and others from illness and/or infections.

Prerequisite: None

<b>PNE 1003 Fundamentals of Practical Nursing</b>	6	4	0	8
---------------------------------------------------	---	---	---	---

Designed to assist the beginning Practical Nurse student in acquiring knowledge basic to the development of skills needed for safe and effective bedside nursing

care. Body mechanics for nurse and patient. Laboratory practice in daily hygienic care of patients' medical and surgical aseptic needs.

Prerequisite: None

<b>PNE 1004 Clinical Experience I</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>1</b>
---------------------------------------	----------	----------	----------	----------

Beginning experiences in a general hospital under supervision of clinical teachers, with opportunity to practice skills learned in the laboratory, and understanding of role on the nursing team.

Corequisites: PSY 1101, PNE 1001, 1002, 1003

<b>PNE 1005 Medical-Surgical Nursing I</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>4</b>
--------------------------------------------	----------	----------	----------	----------

Designed to give the student material basic to the beginning understanding of the nursing care of patients with common problems presented by illness. Processes of illness, diagnostic tests, physiologic reaction to pain, needs of patients with long term illnesses, rehabilitation, pre and post operative needs, anesthesia agents, and modification of diet for disease condition.

Prerequisite: PNE 1001, 1002, 1003; PSY 1101, Eng 1102

<b>PNE 1006 Maternity Nursing</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>4</b>
-----------------------------------	----------	----------	----------	----------

Presentation of modern aspects of maternity nursing with emphasis on normal obstetrics. Detailed presentation of material on nursing care during antepartum, labor and postpartum periods. Care of the newborn baby and methods of teaching new mothers. Emphasis is to provide better and safer care for the expectant mother and her baby.

Prerequisites: PNE 1001, 1002, 1003; ENG 1102, PSY 1101

<b>PNE 1007 Pediatric Nursing</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>4</b>
-----------------------------------	----------	----------	----------	----------

Understanding of the scope and aims of modern nursing of children. Physical differences in the child from the adult. Methods of answering the needs of the hospitalized child and his parents. Common disorders of children and their implications for nursing care. Nursing care of the seriously ill child with emphasis on her role on the health team.

Prerequisites: PSY 1101, PNE 1001, 1002, 1003; ENG 1102

<b>PNE 1008 Clinical Experience II</b>	<b>0</b>	<b>0</b>	<b>24</b>	<b>8</b>
----------------------------------------	----------	----------	-----------	----------

Further experience in basic areas of medical, surgical, pediatric, or obstetric nursing. Emphasis on observation of signs and symptoms and assuming responsibility in reporting to head nurse.

Prerequisite: PNE 1004.

<b>PNE 1009 Medical-Surgical Nursing II</b>	<b>6</b>	<b>0</b>	<b>0</b>	<b>6</b>
---------------------------------------------	----------	----------	----------	----------

Designed to develop knowledge of common disorders of body systems, the nursing care, socio-psychological implications. Included are the disorders of the circulatory system and respiratory system.

Prerequisite: PNE 1105.

<b>PNE 1010 Drugs and Drug Administration</b>	<b>3</b>	<b>2</b>	<b>0</b>	<b>4</b>
-----------------------------------------------	----------	----------	----------	----------

Designed to present knowledge of sources of drugs, their classification and uses,

and importance of observing for possible reactions. Develop in the laboratory skills in giving oral drugs. Develop knowledge of equipment and sterilization techniques used in the preparation and giving of injections; insulin therapy.  
Prerequisites: PNE 1005, 1006, 1007, 1008

**PNE 1011 Clinical Experience III** 1 0 24 9

Further experience in the practice of nursing skills. Continued experiences in the basic areas of medical-surgical nursing. Experience in giving oral and topical medications under the direction of clinical teacher. Emphasis on observation of signs and symptoms and taking part in making nursing judgments in team conference. Isolation techniques and practice, oxygen therapy.  
Prerequisite: PNE 1008.

**PNE 1012 Advanced Medical-Surgical Nursing III** 7 0 0 8

Continue the study of the nursing needs of the more seriously ill or aging patients with disorders affecting the systems: Gastro-Intestinal, Muscular-Skeletal, Nervous, including eyes, ears, nose and throat, endocrine, urinary and integumentary. Disaster and emergency nursing are also included.  
Prerequisite: PNE 1009.

**PNE 1013 Mental Health** 2 0 0 2

An introduction of mental, emotional and physical reactions caused by illness and hospitalization. The study of the more frequent symptoms of mental illnesses, and the Practical Nurse student's role in the care of mentally or emotionally disturbed patient. Common terminology associated with the field of mental health.  
Prerequisite: PSY 1101.

**PNE 1014 Vocational Adjustment** 2 0 0 2

Designed to present further nursing ethics, medical-legal aspects of Practical Nursing and a study of the organizations for the graduate Practical Nurse, and the study of opportunities in Practical Nursing and the obligations and responsibilities of the Licensed Practical Nurse as a person, a worker, and a citizen.  
Prerequisite: PNE 1012.

**PNE 1015 Clinical Experience IV** 1\* 0 24 9

Continued experience in medical-surgical, pediatric and maternity nursing with emphasis on the role as an assistant to the professional nurse in caring for the seriously ill patient. All experience in the clinical area is under the supervision of the clinical teacher.  
Prerequisite: PNE 1011.

**PSYCHOLOGY (PSY)**

**T-PSY 112 Personality Development** 3 0 3

Designed to help the student recognize the importance of the physical, intellectual, social, and emotional dimensions of personality. Emphasis is placed on grooming and methods of personality improvement.

\*Seminar



<b>T-PSY 206 Applied Psychology</b>	3	0	3
-------------------------------------	---	---	---

A study of the principles of psychology that will be of assistance in the understanding of inter-personal relations on the job. Motivation, feeling and emotions are considered with particular reference to on-the-job problems. Other topics investigated are: employee selection, supervision, job satisfaction, and industrial conflicts. Attention is also given to personal and group dynamics so that the student may learn to apply the principles of mental hygiene to his adjustment problems as a worker and a member of the general community.  
Prerequisite: None.

<b>T-PSY 221 Psychology of Color</b>	3	0	3
--------------------------------------	---	---	---

A study of color, the conscious and unconscious response to combinations of hues, tones and colors as applied to the field of commercial art.  
Prerequisite: None.

<b>PSY 1101 Human Relations</b>	3	0	3
---------------------------------	---	---	---

A study of basic principles of human behavior. The problems of the individual are studied in relation to society, group membership, and relationships within the work situation.  
Prerequisite: None.

<b>PSY 1112 Personality Development</b>	3	0	3
-----------------------------------------	---	---	---

Designed to help the student recognize the importance of the physical, intellectual, social, and emotional dimensions of personality. Emphasis is placed on grooming and methods of personality improvement.

## SOCIAL SCIENCES

<b>T-SSC 201 Social Science</b>	3	0	3
---------------------------------	---	---	---

An integrated course in the social sciences, drawing from the fields of anthropology, psychology, history, and sociology.  
Prerequisite: None.

<b>T-SSC 202 Social Science</b>	3	0	3
---------------------------------	---	---	---

A further study of social sciences with emphasis on economics, political science, and social problems as they relate to the individual.  
Prerequisite: T-SSC 201.

<b>T-SSC 205 American Institutions</b>	3	0	3
----------------------------------------	---	---	---

A study of the effect of American social, economic, and political institutions upon the individual as a citizen and as a worker. The course dwells upon current local, national, and global problems viewed in the light of our political and economic heritage.  
Prerequisite: None.



## **SOCIOLOGY (SOC)**

<b>T-SOC 207 Rural Society</b>	<b>3</b>	<b>0</b>	<b>3</b>
--------------------------------	----------	----------	----------

A study of selected elements of rural sociology with emphasis on current social changes. The course provides a sociological background for the understanding of rural social changes. Areas of study include rural culture, group relationships, social classes, rural and suburban communities, farm organizations, the communication of agricultural technology, rural social problems, agricultural adjustment and population change. Prerequisite: None.

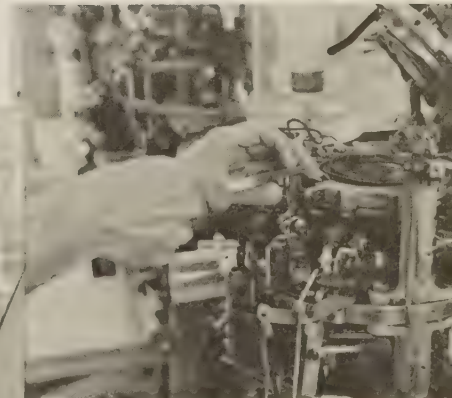
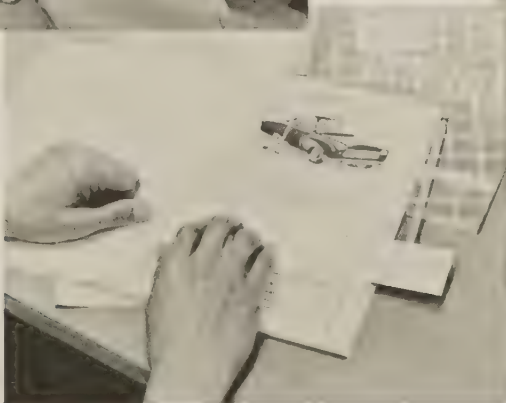
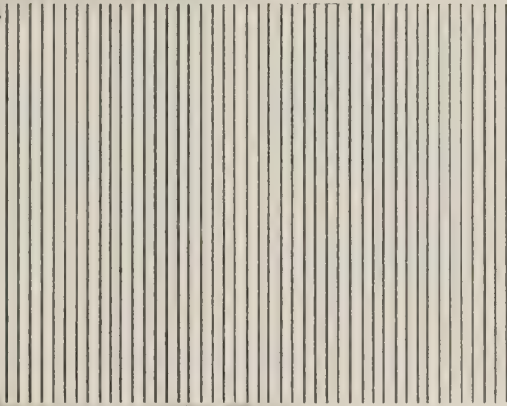
## **WELDING (WLD)**

<b>WLD 1101 Basic Gas &amp; Electric Welding</b>	<b>0</b>	<b>3</b>	<b>1</b>
--------------------------------------------------	----------	----------	----------

Welding demonstrations by the instructor and practice by students in the welding shop. Safe and correct methods of assembling and operating the welding equipment. Practice will be given for surface welding; brazing, silver-soldering, and flame-cutting methods applicable to mechanical repair work using gas welding. Practice in basic electric welding will be given as it applies to simple construction and mechanical repair. Prerequisite: None.



# GENERAL ADULT EDUCATION





## **GENERAL ADULT EDUCATION**

The Division of General Adult Education provides the adult community with a wide range of educational opportunity.

The adult of any educational level can choose from the following categories a program to fit his objective.

### **ADULT BASIC EDUCATION**

Basic education (grades 1-8) is open to any adult at least 18 years old.

Classes meet twice weekly, three hours each night, and are located in various communities throughout Alamance and Caswell Counties. Reading, writing, spelling, and arithmetic make up the major areas of study. The student may enter the program at any time, and progress at his own speed. This program is free of charge.

After finishing the eighth grade level, the student may enter the Adult High School.

### **ADULT HIGH SCHOOL**

In cooperation with the Burlington City Schools, TIA offers a high school diploma to adults who failed to graduate from the public schools. The student may transfer completed units from his previous high school. Units are earned through regular classroom study. Costs of fees and books are held to a minimum, usually approximately \$5.00 per course.

To be enrolled a student must be at least 18 years old and his regular high school class must have already graduated. He must have completed the eighth grade in public school or the eighth grade level in the Adult Basic Program described above.

He may enter at the beginning of any quarter, approximately September 1, December 1, March 1, and June 1.

Specific high school courses are offered from the broad fields of English, mathematics, social studies, science, foreign languages, and vocational training.

Graduates will be issued an Adult High School Diploma from the cooperating public school board.

Adults who already have a high school diploma may enroll in high school courses for refresher training.



## SELF-IMPROVEMENT AND GENERAL INTEREST COURSES

A broad range of courses is offered in this area, including, but not limited to, the list below. Courses are offered day or night, for short durations, in order to fit the busy adult's schedule. Variations of course offerings are limited only by community interest and available instructors. **Adults should call the Institute to express their areas of interest.** Cost of all courses is kept to a minimum and will be announced whenever a course is scheduled.

### Academic

- Special Remedial Courses
- College Preparatory Courses
- Advanced Courses

### Creative Arts

- Music Theory
- Painting and Drawing
- Art Appreciation
- Art Exhibits
- Speakers Bureau
- Forums on Community Affairs
- Creative Writing

### Parent Education

- Adolescent Behavior
- Pre-school Problems
- Child Psychology
- Maternity Care
- Modern Math for Parents

### Language Arts

- Literature
- Creative Writing
- Group Dynamics
- Public Speaking
- Rapid Reading
- Effective Listening

### Hobby Courses

- Small Engine Repair
- Auto Tune-up at Home
- Orientation to the Auto for Women
- Ham Radio

- Orientation to the Motorcycle
- Volunteer Choir
- Ground School for Private Pilots

### Citizenship

- North Carolina History
- American History
- Political Parties
- The Constitution

### Family Life

- Mental Hygiene
- Geriatrics
- Community-Family Relations
- Exceptional Children

### Homemaking

- Sewing
- Tailoring
- Interior Decorating
- Nutrition
- Landscaping

### Foreign Languages

- Conversational French
- Conversational Spanish

### Consumer Education

- Family Finance
- Law for the Layman
- Consumer Problems
- Personal Investments

## EXTENSION

Extension courses are job-related part-time studies to increase skills of employees.

Special extension areas are state-wide in nature. These courses can be taken through many of the Community College Systems' institutions throughout the state, each issuing cumulative credits toward extension certificates.

### Fire Service Training

Designed for full-time and volunteer firemen including courses such as:

Arson	Forcible Entry
Fire Brigade	Extinguisher Practices
Salvage Operation	Rope Practices
Protective Equipment	Home Fire Safety
First Aid and Rescue	Area Fire Schools

### Hospitality Training

Designed for the hotel-motel and food service industry including such courses as:

Waitress Training	Promotion
Housekeeping	Service Station Retailing
Management	Food Preparation
Communication	School Food Service

### Law Enforcement

Designed for law enforcement officers including such courses as:

Introduction to Police Science	Motor Vehicle Law
Courts and Law	Liquor Law
Elements of Arrest	Administration
Search and Seizure	Human and Public Relations
Evidence	Riot Control
Investigation	Chemical Tests for Alcohol

### Supervisory Development Training

Designed for the supervisory or pre-supervisory level including courses in:

Principles of Supervision	Effective Communications
Human Relations	Effective Writing
Act of Motivating People	Effective Speaking
Economics in Business and Industry	Reading Improvement
	Work Measurement

Job Methods  
Conference Leadership  
Job Instruction Training  
Creative Thinking  
Industrial Safety and  
Accident Prevention

Industrial First Aid  
The Supervisor in North Carolina  
The Supervisor and Employee Benefits  
Job Analysis Training  
Cost Accounting for Supervisors

**Extension courses are also developed to meet local needs as they arise.** Courses are offered day or night, for various durations, to meet the working adult's schedule. The following courses represent examples of possible offerings:

### **Vocational**

Basic Electricity  
Air Conditioning  
Machine Shop  
Auto Mechanics  
Drafting  
Slide Rule  
Blueprint Reading  
Loom Fixing

Knitting Machine Fixing  
Home Appliance Repair  
Weaving  
Bricklaying  
Farm Electrification  
Apprenticeship Training  
Power Sewing  
Tractor Repair

### **Technical**

Electronics  
Computer Operation  
Chemistry  
Fabric Design  
C.O.B.O.L.—Common Business Oriented Language  
Precision Measurements

### **Professional**

Review for Licensed Professional Engineers  
Refresher for Registered Nurses  
Fundamentals of Real Estate  
Methods of Teaching Vocational Subjects  
Graduate Courses in Education (In cooperation with graduate schools)  
Advanced Pharmacology for Licensed Practical Nurses

**Other special programs may be offered to meet the training requirements of a specific business or industry.**

**Instructors are selected from men who are academically qualified and who have demonstrated successful work experience in the subject area to be taught.** Frequent use of case studies, audio-visual aids, and class participation insure a high degree of student interest.

Cost is kept to a minimum, frequently only \$2.00 per course.

Classes are held both day and night in the modern Technical Institute building or at the site of employment.

### FUNDAMENTALS LEARNING LABORATORY

The Fundamentals Learning Laboratory features programmed, self-instruction in areas of the language arts, social studies, mathematics, science, foreign language, art, and academic skills. Vocational courses are also available in electricity, electronics, and business education.

Programmed materials enable the student to **progress at his own speed** and **to study during scheduled time periods most convenient to him**, and to study without competition with fellow students. Learning Lab hours are 8:00 A. M. to 9:00 P. M. Monday through Thursday, and 8:00 A. M. to 4:00 P. M. Fridays.

Many adults study in the Learning Lab in preparation for the State High School Equivalency Examination. Some Lab courses are transferable into the Adult High School Diploma Program. Lab courses frequently meet the need of students whose schedules make classroom attendance difficult.

Anyone at least 18 years old can enroll any time during any quarter.

A coordinator is available to counsel and assist students. No grades are issued, but students are clearly aware of progress made.

All Learning Laboratory study is **free of charge**.





3 3091 00825 4393

CALENDAR FOR 1969																														
JANUARY							APRIL							JULY							OCTOBER									
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S			
					1	2	3	4					1	2	3	4	5								1	2	3	4		
5	6	7	8	9	10	11	6	7	8	9	10	11	12	6	7	8	9	10	11	12	5	6	7	8	9	10	11			
12	13	14	15	16	17	18	13	14	15	16	17	18	19	13	14	15	16	17	18	19	12	13	14	15	16	17	18			
19	20	21	22	23	24	25	20	21	22	23	24	25	26	20	21	22	23	24	25	26	19	20	21	22	23	24	25			
26	27	28	29	30	31		27	28	29	30				27	28	29	30	31			26	27	28	29	30	31				
FEBRUARY							MAY							AUGUST							NOVEMBER									
						1					1	2	3				1	2							1					
2	3	4	5	6	7	8	4	5	6	7	8	9	10	3	4	5	6	7	8	9	2	3	4	5	6	7	8			
9	10	11	12	13	14	15	11	12	13	14	15	16	17	10	11	12	13	14	15	16	9	10	11	12	13	14	15			
16	17	18	19	20	21	22	18	19	20	21	22	23	24	17	18	19	20	21	22	23	16	17	18	19	20	21	22			
23	24	25	26	27	28		25	26	27	28	29	30	31	24	25	26	27	28	29	30	23	24	25	26	27	28	29			
														31							30									
MARCH							JUNE							SEPTEMBER							DECEMBER									
						1	1	2	3	4	5	6	7				1	2	3	4	5				1	2	3	4	5	6
2	3	4	5	6	7	8	8	9	10	11	12	13	14	7	8	9	10	11	12	13	7	8	9	10	11	12	13			
9	10	11	12	13	14	15	15	16	17	18	19	20	21	14	15	16	17	18	19	20	14	15	16	17	18	19	20			
16	17	18	19	20	21	22	22	23	24	25	26	27	28	21	22	23	24	25	26	27	21	22	23	24	25	26	27			
23	24	25	26	27	28	29	29	30						28	29	30					28	29	30	31						
30	31																													

CALENDAR FOR 1970																														
JANUARY							APRIL							JULY							OCTOBER									
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S			
					1	2					1	2	3	4					1	2	3					1	2	3		
4	5	6	7	8	9	10	5	6	7	8	9	10	11	5	6	7	8	9	10	11	4	5	6	7	8	9	10			
11	12	13	14	15	16	17	12	13	14	15	16	17	18	12	13	14	15	16	17	18	11	12	13	14	15	16	17			
18	19	20	21	22	23	24	19	20	21	22	23	24	25	19	20	21	22	23	24	25	18	19	20	21	22	23	24			
25	26	27	28	29	30	31	26	27	28	29	30			26	27	28	29	30	31		25	26	27	28	29	30	31			
FEBRUARY							MAY							AUGUST							NOVEMBER									
1	2	3	4	5	6	7						1	2					1			1	2	3	4	5	6	7			
8	9	10	11	12	13	14	3	4	5	6	7	8	9	2	3	4	5	6	7	8	8	9	10	11	12	13	14			
15	16	17	18	19	20	21	10	11	12	13	14	15	16	9	10	11	12	13	14	15	15	16	17	18	19	20	21			
22	23	24	25	26	27	28	17	18	19	20	21	22	23	16	17	18	19	20	21	22	22	23	24	25	26	27	28			
							24	25	26	27	28	29	30	23	24	25	26	27	28	29	29	30								
							31							30	31															
MARCH							JUNE							SEPTEMBER							DECEMBER									
1	2	3	4	5	6	7	1	2	3	4	5	6					1	2	3	4	5				1	2	3	4	5	6
8	9	10	11	12	13	14	7	8	9	10	11	12	13	6	7	8	9	10	11	12	6	7	8	9	10	11	12			
15	16	17	18	19	20	21	14	15	16	17	18	19	20	13	14	15	16	17	18	19	13	14	15	16	17	18	19			
22	23	24	25	26	27	28	21	22	23	24	25	26	27	20	21	22	23	24	25	26	20	21	22	23	24	25	26			
29	30	31					28	29	30					27	28	29	30				27	28	29	30	31					



REQUEST FOR ADMISSION

TECHNICAL INSTITUTE OF ALAMANCE

411 Camp Road, Burlington, North Carolina 27215

Phone 226-6307

Home Telephone Number \_\_\_\_\_

1. Name (Mr., Miss, Mrs.) \_\_\_\_\_  
Last First Middle

If you are married, give maiden name.

If you are under 21, give name of parent

2. Home Address \_\_\_\_\_  
Name and Street City State Zip

3. Marital Status \_\_\_\_\_  
Married, Single, Divorced, etc. If married, give spouse's name and address.

4. Birth \_\_\_\_\_ Age \_\_\_\_\_ Birthplace \_\_\_\_\_ State \_\_\_\_\_  
Month Day Year City or County

5. Social Security No. \_\_\_\_\_ Sex \_\_\_\_\_ Race \_\_\_\_\_

6. High School Last Attended \_\_\_\_\_  
Name of School Address of School County

Did you (or will you) graduate? (a) yes \_\_\_\_\_ Date of Graduation \_\_\_\_\_  
(b) no \_\_\_\_\_ Grade Completed \_\_\_\_\_  
(c) Equivalency Certificate \_\_\_\_\_

7. Schools or colleges attended after high school graduation, if any \_\_\_\_\_

Name of School	Dates of Attendance
_____	_____
_____	_____

8. Have you ever been dismissed from a college? No \_\_\_\_\_ Yes \_\_\_\_\_ If yes, which college \_\_\_\_\_  
when \_\_\_\_\_

9. I plan to enroll full time (12 or more quarter hours) \_\_\_\_\_ Less than full-time \_\_\_\_\_

10. I plan to attend Day Classes \_\_\_\_\_ Evening Classes \_\_\_\_\_

11. This application is for admission to what quarter? Fall 19\_\_\_\_\_, Winter 19\_\_\_\_\_  
Spring 19\_\_\_\_\_, Summer 19\_\_\_\_\_

12. I need information on area housing \_\_\_\_\_

I understand that I am responsible for having official transcripts of my high school and previous college records, if any, sent directly to the Admission Officer, Technical Institute of Alamance, 411 Camp Road, Burlington, North Carolina 27215. I certify that I have listed above all schools or colleges attended after high school, if any. NOTE: Special physical examination forms are required of Practical Nursing and Dental Assistant applicants. These forms will not be sent to the student until 30 days prior to enrollment.

Date of application \_\_\_\_\_ Applicant's Signature \_\_\_\_\_

(over)

## HEALTH INFORMATION

Rate as excellent, good, fair, or poor: Your general health \_\_\_\_\_ eyesight \_\_\_\_\_ hearing \_\_\_\_\_

speech \_\_\_\_\_ What is your height? \_\_\_\_\_ weight? \_\_\_\_\_

Do you have any physical handicaps that interfere with your studies or work that you might assume: If so, please explain \_\_\_\_\_

Are you at present receiving medical care of any sort? \_\_\_\_\_ If so, please describe and give dates. \_\_\_\_\_

## FIELDS OF STUDY

Please place a check mark before the field of study you wish to pursue. Check only one.

TECHNICAL PROGRAMS	VOCATIONAL PROGRAMS	EXTENSION CERTIFICATE PROGRAMS
Leading to associate of applied science degree and preparation for employment.	Leading to a diploma and preparation for employment.	Job related for employed person. (Title see below)
<b>BUSINESS EDUCATION TECHNOLOGIES</b>	____Air Conditioning, Heating, and Refrigeration	____Air Conditioning, Heating and Refrigeration
____Business Administration	____Automotive Mechanics	____Automotive Mechanics
____Electronic Data Processing—Business	____Dental Assistant	____Drafting — Mechanical
____Electronic Data Processing—Scientific	____Mechanical Drafting	____Radio and TV
____Medical Secretary	____Machinist Trade	____Machine Shop
____Engineering and Technical Secretary	____Practical Nursing	____(Other) _____
<b>ENGINEERING TECHNOLOGIES</b>		
____Air Conditioning, Heating, Refrigeration		
____Chemical Technology		
____Drafting and Design Technology		
____Electromechanical Technology		
____Manufacturing Technology		
____Electronics Technology		
<b>SPECIAL — TECHNOLOGY</b>	I am interested in _____	
____Commercial Art and Advertising Design	____Undecided. I would like to have assistance through vocational counseling.	

## Character References (list three)

On the references below, please list three people who can attest to your character and potential.

Name \_\_\_\_\_ Address \_\_\_\_\_

Name \_\_\_\_\_ Address \_\_\_\_\_

Name \_\_\_\_\_ Address \_\_\_\_\_

